



ONEOK
BAKKEN PIPELINE

A SUBSIDIARY OF ONEOK PARTNERS

Reviewer AMB
cc: _____
Modeler _____
D.E. _____
File 2
IMP FID FO25249



July 16, 2015

NSR Program Manager
Wyoming Department of Environmental Quality (WDEQ)
Air Quality Division
Herschler Building 2-E
122 West 25th Street
Cheyenne, WY 82002

Re: **WDEQ Permit Application**
ONEOK Bakken Pipeline, L.L.C. – Temporary Diesel Generators and Tanks at the Aladdin Booster Station
Hulett, Crook County, Wyoming

Dear Sir or Madam,

ONEOK Bakken Pipeline, L.L.C (ONEOK) owns and operates the Aladdin Booster Station, located in Section 5, Township 54N, Range 61W, approximately twenty (20) miles east of Hulett, Crook County, Wyoming. The Aladdin Booster Station is a natural gas liquids (NGL) booster station for the Bakken Pipeline. The station consists of three (3) electric pumps, one (1) pig receiver, one (1) pig launcher and one (1) flare, along with various other valves and piping components, which have been permitted under the WDEQ Permit Waiver wv-14981-6.

ONEOK proposes to construct and operate eleven (11), EPA Tier 4 certified, temporary diesel generators (one (1) Cummins QSB5-G9: 129 kW/173 hp; seven (7) Cummins QSB7-G6: 234 kW/314 hp, and three (3) Cummins QSL9-G8: 323 kW/433 hp) at the Aladdin Booster Station. ONEOK also proposes to construct and operate four (4) 2,500 gallon diesel storage tanks to provide fuel to the generators. These generators are already in temporary operation at the booster station, permitted under the WDEQ Permit Waiver P0017278, which expires on August 27, 2015 (90 days from the notified start of operation). ONEOK seeks to extend the operation of these engines and tanks for a period of 180 days through this construction permit application.

The Cummins QSB5-G9: 129 kW generator will be used to provide power to the buildings and other areas of the booster station for 180 days, by which time an external power line/alternative power source will be operational. The seven (7) Cummins QSB7-G6: 234 kW and three (3) Cummins QSL9-G8: 323 kW generators will be used to provide power to run the pumps at the booster station for 180 days, by which time an external power line/alternative power source will be operational.

Due to the temporary nature of operation of these generators and tanks, the emissions from these generator engines and tanks have not been aggregated with existing emissions. Note that even if the emissions from all potential sources at the Booster Station are aggregated, the emissions from the



facility are less than the major source thresholds for both Prevention of Significant Deterioration (PSD) and Title V permitting.

Please find enclosed the emission calculations, supporting documentation and WDEQ construction permit application forms for the proposed temporary diesel generators and tanks. This construction permit application is intended to cover the construction and operation of all temporary power generators at the Aladdin Booster Station¹.

Considering the temporary nature of usage and the exigent need for these generators at the booster station, ONEOK requests an expedited construction permit from the WDEQ, thereby enabling the immediate usage of these generators² for temporary power supply purposes.

If you have any questions regarding this application, please feel free to contact me at (580) 395-6322. Alternatively, Ms. Kim Ayotte of Trinity Consultants can be reached at (720) 638-7647.

Sincerely,

ONEOK BAKKEN PIPELINE, L.L.C.

Patrick Allison
Environmental Engineer, Pipelines

Enclosed:

Cc: Ms. Kim Ayotte, Trinity Consultants (Denver)

¹ This construction permit will replace the permit waiver P0017278.

² ONEOK would like to commence operation with these temporary generators prior to the expiration of the Permit Waiver P0017278 (which expires on August 27, 2015).



NEW SOURCE REVIEW CONSTRUCTION PERMIT APPLICATION

ONEOK Bakken Pipeline, L.L.C.
Aladdin Booster Station - Temporary Power Generators

Prepared By:

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July 2015

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1. EXECUTIVE SUMMARY

ONEOK Bakken Pipeline, L.L.C. (ONEOK) is submitting this new source review construction permit application to construct and operate eleven (11) temporary diesel generators and associated diesel storage tanks at the Aladdin Booster Station. The Aladdin Booster Station is located in Section 5, T54N, R61W, approximately twenty (20) miles east of Hulett, in Crook County Wyoming.

The Aladdin Booster Station is a natural gas liquids (NGL) booster station for the Bakken Pipeline, which consists of approximately 500 miles of pipeline transporting NGL from Sydney, Montana to the existing Overland Pass Pipeline in Weld County, Colorado. On May 22, 2015 a permit waiver (P0017278) was issued for the temporary use of eleven (11) EPA Tier 4i certified, diesel generator engines as well as four (4) 2,500 gallon diesel storage tanks to provide diesel fuel to the generators. The permit waiver (P0017278) was issued for a period of 90 days from the start of operation and expires on August 27, 2015. Due to exigencies in obtaining an external power line/alternative power source, ONEOK seeks to extend the operation of these engines and tanks for a period of 180 days through this construction permit application.

This permit application for operating these temporary generators will not affect the issued permit waivers for the booster station operations and will be its own stand-alone permit for the operation of these temporary generator engines.

1.1. PROPOSED PROJECT

ONEOK proposes to construct and operate the following temporary sources at the Aladdin Booster Station:

- 1) One (1), 173 hp Cummins QSB5G9 diesel fired generator engine
- 2) Seven (7) 314 hp Cummins QSB7G6 diesel fired generator engines
- 3) Three (3) 433 hp Cummins QSL9G8 diesel fired generator engines
- 4) Four (4) 2,500 gallon diesel storage tanks

The diesel generators will be used to provide power to run the pumps and provide power to buildings at the booster station. The usage of these generator engines are needed on an exigent basis since the booster stations operations have commenced and an external power line to the station to provide power to run the motors for the pumps has not yet been installed. ONEOK plans to use these engines for approximately 180 days or less, from the date of issuance of the permit, since it is anticipated that an external power line/alternative power source to the plant will be installed and completed within that time-frame. The vapor pressure of diesel in these tanks is low and as demonstrated in Section 3, these tanks are insignificant sources of hazardous air pollutant (HAP) and Volatile Organic Compounds (VOCs).

1.2. PERMITTING CONSIDERATIONS

Due to the temporary nature of these generator operations, ONEOK requests the Wyoming Department of Environmental Quality (WDEQ) permit this unit separately from the Aladdin Booster Station. Consequently, the emissions from these engines and associated tanks are not aggregated with emissions from other sources at the Aladdin Booster Station. The emissions from these generator engines and tanks are shown in Table 1-1.

Note that even if the emissions from all potential sources at the Booster Station are aggregated as shown in Table 1-2, the emissions from the facility are less than the major source thresholds for both Prevention of Significant Deterioration (PSD) and Title V permitting. Consequently, a PSD review is not required for this

application. Neither a Title V permit application, nor an operating permit, will be required for these generators. The generator engines and associated tanks will be a minor source for permitting purposes for both of the aforementioned programs.

Therefore, ONEOK requests the WDEQ grant a construction permit for the proposed temporary generators and associated storage tanks. ONEOK also respectfully requests expedited processing from the WDEQ to enable the immediate usage of these generator engines for temporary purposes.

Table 1-1. Potential Emission Summary – Eleven (11) EPA Tier 4i Certified Engines and Four (4) Diesel Storage Tanks

| ID | Source | NO _x | | CO | | VOC | | HAP | | PM | | SO ₂ | |
|--------------------------|-------------------------------|-----------------|------|-------|------|-------|------|-------|-----|-------|------|-----------------|------|
| | | lb/hr | tpy | lb/hr | tpy | lb/hr | tpy | lb/hr | tpy | lb/hr | tpy | lb/hr | tpy |
| Gen 1 | Cummins QSB5-G9 | 0.6 | 1.2 | 1.0 | 2.2 | 0.4 | 0.9 | 0.0 | 0.0 | 0.01 | 0.01 | 0.35 | 0.77 |
| Gen 2 to Gen 8 | Cummins QSB7-G6 | 7.2 | 15.6 | 12.6 | 27.3 | 5.5 | 12.0 | 0.1 | 0.1 | 0.07 | 0.16 | 4.51 | 9.73 |
| Gen 9 to Gen 11 | Cummins QSL9-G8 | 4.3 | 9.2 | 7.5 | 16.2 | 3.3 | 7.1 | 0.0 | 0.1 | 0.04 | 0.09 | 2.66 | 5.75 |
| Tanks | Diesel Fuel Tanks 1,2,3 and 4 | - | - | - | - | 0.0 | 0.0 | 0.0 | 0.0 | - | - | - | - |
| Total Facility Emissions | | 12.1 | 26.1 | 21.1 | 45.6 | 9.2 | 20.0 | 0.1 | 0.2 | 0.1 | 0.3 | 7.5 | 16.3 |

Table 1-2. Emission Summary – All Potential Sources at the Booster Station

| Pollutant | Uncontrolled Potential Emissions | | Title V Major Source Thresholds | PSD Major Source Thresholds | Title V Major? (Y or N) | PSD Major? (Y or N) |
|-------------------------|----------------------------------|-------|---------------------------------|-----------------------------|-------------------------|---------------------|
| | (lb/hr) | (tpy) | (tpy) | (tpy) | | |
| PM | 0.12 | 0.26 | 100 | 250 | N | N |
| PM ₁₀ | 0.12 | 0.26 | 100 | 250 | N | N |
| PM _{2.5} | 0.12 | 0.26 | 100 | 250 | N | N |
| SO ₂ | 7.52 | 16.25 | 100 | 250 | N | N |
| NO _x | 14.16 | 26.16 | 100 | 250 | N | N |
| VOC | 31.75 | 25.18 | 100 | 250 | N | N |
| CO | 32.91 | 45.90 | 100 | 250 | N | N |
| Total HAPs ¹ | 0.11 | 0.26 | 25 | N/A | N | N/A |

¹ Hazardous Air Pollutants (HAPs)

1.3. PERMIT APPLICATION

This permit application was prepared in accordance with Wyoming Air Quality Standards and Regulations (WAQSR) Chapter 6, Section 2 and Oil and Gas guidance¹. This application includes the following:

- Section 2: Process Description, Process Flow Diagram and Area Map;
- Section 3: Emission Calculations and Supporting Documentation;
- Section 4: Best Available Control Technology (BACT) Requirements;
- Section 5: Regulatory Analysis;
- Section 6: Ambient Air Quality Analysis;
- Section 7: WDEQ Forms; and
- Appendix A: Manufacturer Specification Sheets.

¹ Chapter 6, Section 2 Permitting Guidance – Revised September 2013

2. PROCESS AND FACILITY INFORMATION

2.1. PROCESS DESCRIPTION

2.1.1. Process Description

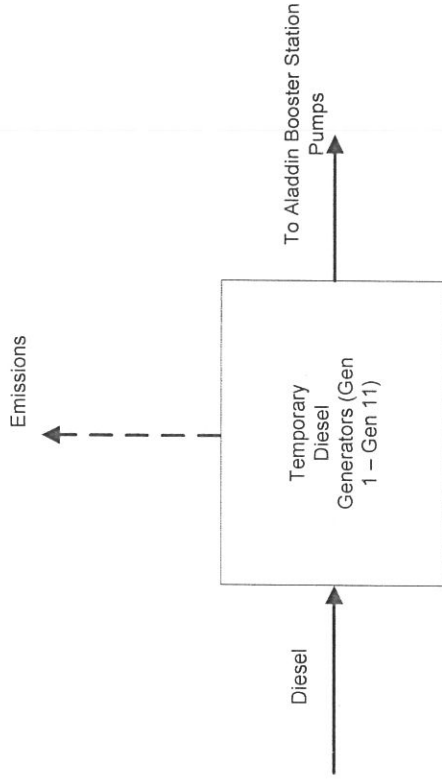
The proposed temporary generator engines will be used for providing power to the motors of the pumps at the booster station. Information on the engines, manufacturer, rating, usage and other information is given below in Table 2-1:

Table 2-1. Proposed Temporary Generators

| Engine ID | Engine Description | Engine Configuration | Rating (hp) | Tier | Usage |
|-----------------------|--------------------|-----------------------------------------------|-------------|------------------|--------------------------------------------|
| Diesel Gen 1 | Cummins QSB5-G9 | Turbocharged and Charge Air Cooled and EGR | 173 | US EPA Tier 4(i) | Power for buildings at the Booster Station |
| Diesel Gen-2 - Gen-8 | Cummins QSB7-G6 | Turbocharged and Charge Air Cooled and EGR | 314 | US EPA Tier 4(i) | Power for pumps at the Booster Station |
| Diesel Gen-9 - Gen-11 | Cummins QSL9-G8 | Turbocharged and Charge Air Cooled and EGR | 433 | US EPA Tier 4(i) | Power for pumps at the Booster Station |

The simplified process flow diagram is shown in Figure 2-1 and area map in Figure 2-2.

Figure 2-1. Process Flow Diagram



Legend:

———— Raw Material

- - - - - Air Emissions

ONEOK Bakken Pipeline, L.L.C.
Temporary Diesel Generators for Pumps - Permit Application

Process Flow Diagram

Aladdin Booster Station



July 2015

Figure 2-2. Area Map

3. EMISSION CALCULATIONS

This section summarizes the criteria pollutant and hazardous air pollutant (HAP) calculation methodologies and provides emission calculations for the temporary diesel generator engines at the facility.

Combustion of diesel will result in nitrogen oxides (NO_x), carbon monoxide (CO), sulfur dioxide (SO₂), particulate matter (PM), particulate matter with aerodynamic diameter below 10 microns (PM₁₀), particulate matter with aerodynamic diameter below 2.5 microns (PM_{2.5}), volatile organic compounds (VOC) and HAP emissions.

The emission factors for NO_x, VOC, CO and PM are obtained from testing these engines in accordance with 40 CFR 1065, US EPA Nonroad Tier 4(i) regulations. The PM₁₀ emission represents total PM (i.e., filterable plus condensable) and is assumed to equal PM and PM_{2.5}. VOC emission factor is conservatively assumed to be the same as the Hydrocarbons (HC) emission factor. SO₂, and individual HAP emission factors are obtained from U.S. EPA AP-42, Chapter 3, Section 3, Tables 3.3-1 and 3.3-2.²

Emissions (working and breathing losses) from the diesel storage tanks have been estimated using Tanks 4.09d.

Detailed emission calculation spreadsheets, including example calculations, are included at the end of this section.

² U.S. EPA AP-42 Section 3, Table 3.3-1 and Table 3.3-2 (Emission Factors for Gasoline and Diesel Industrial Engines, October 1996)

DIESEL ENGINE - EMISSIONS

Source ID = Diesel Gen-1
 Engine Make and Model = Cummins QSB5-G9
 Fuel Type = Diesel
 EPA Tier Standard = US EPA Tier 4(i)
 Number of Generators = 1
 Design Power Output = 129 kW¹
 Design Power Output = 173 hp¹
 Estimated Maximum Heat Input = 1.21 MMBtu/hr²
 Annual Operating Hours = 4,320 hrs/yr¹
 Avg Break Specific Fuel Consumption = 7,000.0 Btu/hp-hr³

| Pollutant / Speciated Organics | Emission Factor | Units | Estimated Potential Emissions ^{4,5} (lb/hr) | (tpy) | Total Estimated Potential Emissions ⁹ (lb/hr) | (tpy) |
|--------------------------------------------------|-----------------|-----------------------------|---------------------------------------------------------|----------|-------------------------------------------------------------|-------|
| NO _x | 2.00 | g/kW-hr ⁷ | 0.57 | 1.23 | 0.57 | 1.23 |
| CO | 3.50 | g/KW-hr ⁷ | 1.00 | 2.15 | 1.00 | 2.15 |
| PM ₁₀ /PM _{2.5} ⁶ | 0.020 | g/kW-hr ⁷ | 0.01 | 1.23E-02 | 0.01 | 0.01 |
| SO ₂ | 2.05E-03 | lb/hp-hr ⁸ | 0.35 | 0.77 | 0.35 | 0.77 |
| Total HIC (VOC) | 0.36 | lb/MMBtu ⁸ | 0.44 | 0.94 | 0.44 | 0.94 |
| Benzene | 9.33E-04 | lb/MMBtu input ⁸ | 1.13E-03 | 2.44E-03 | <0.01 | <0.01 |
| Toluene | 4.09E-04 | lb/MMBtu input ⁸ | 4.95E-04 | 1.07E-03 | <0.01 | <0.01 |
| Xylene | 2.85E-04 | lb/MMBtu input ⁸ | 3.45E-04 | 7.45E-04 | <0.01 | <0.01 |
| 1,3-Butadiene | 3.91E-05 | lb/MMBtu input ⁸ | 4.74E-05 | 1.02E-04 | <0.01 | <0.01 |
| Formaldehyde | 1.18E-03 | lb/MMBtu input ⁸ | 1.43E-03 | 3.09E-03 | <0.01 | <0.01 |
| Acetaldehyde | 7.67E-04 | lb/MMBtu input ⁸ | 9.29E-04 | 2.01E-03 | <0.01 | <0.01 |
| Acrolein | 9.25E-05 | lb/MMBtu input ⁸ | 1.12E-04 | 2.42E-04 | <0.01 | <0.01 |
| Total PAH | 1.68E-04 | lb/MMBtu input ⁸ | 2.03E-04 | 4.39E-04 | <0.01 | <0.01 |
| Total HAP's | | | 4.69E-03 | 0.01 | 4.69E-03 | 0.01 |

¹ Ratings per Engine Performance Data Sheet for Cummins Power Generation Engine QSB5-G9. The hours of operation were calculated assuming 24 hours of operation per day for 180 days.

² Estimated Maximum Heat Input (MMBtu/hr) = AP-42 Average break-specific fuel consumption (Btu/hp-hr) x Power Output (hp) / 10⁶
 Estimated Maximum Heat Input = 7000 Btu/hp-hr x 173 hp = 1,000,000 Btu/hr = 1.21 MMBtu/hr

³ Average Break Specific Fuel Consumption taken from AP-42, Section 3.3, Table 3.3-1, Footnote c.

⁴ Hourly Emission Rate (lb/hr) = Design Power Rating (hp) x Emission Factor (g/hp-hr) x 453.59 lb/g
 or
 Design Power Rating (kW) x Emission Factor (g/kW-hr) x 453.59 lb/g
 or
 Design Power Rating (hp) x Emission Factor (lb/hp-hr)

Hourly Emissions NO_x (lb/hr) = $\frac{2.00 \text{ g}}{\text{kW-hr}} \times \frac{129 \text{ kW}}{1 \text{ lb}} = 0.57 \text{ lb/hr}$
 Annual Emissions (tpy) = Hourly Emissions (lb/hr) x Annual Operating Hours (hrs/yr) x 1 / 2,000 (lb/ton) = 1.23 tpy
 Annual Emissions NO_x (tpy) = $\frac{0.57 \text{ lb}}{\text{hr}} \times \frac{4320 \text{ hr}}{1 \text{ lb}} = 2000 \text{ ton/yr}$

⁶ All particulate matter is assumed to be less than 10 µm, therefore the emission factor and the calculated emissions are the same for PM and PM₁₀. PM₁₀/PM_{2.5} is assumed to equal PM.

⁷ Emission Factors per QSB5-G9 engine tested in accordance with 40 CFR 1065 US EPA Nonroad Tier 4(i) Regulations.

⁸ Emission factors are taken from AP-42, Chapter 3, Section 3. Table 3.3-1 (Emission Factors for Gasoline and Diesel Industrial Engines October 1996), Table 3.3-2 (Speciated Organic Compound Emission Factors for Uncontrolled Stationary Diesel Engines).

⁹ Total emission calculations = Estimated Potential Emissions x Number of Generators

DIESEL ENGINE - EMISSIONS

Source ID = Diesel Gen-2 - Gen-8
 Engine Make and Model = Cummins QSB7-G6
 Fuel Type = Diesel
 EPA Tier Standard = US EPA Tier 4(i)
 Number of Generators: 7
 Design Power Output = 234 kW¹
 Design Power Output = 314 hp¹
 Estimated Maximum Heat Input = 2.20 MMBtu/hr²
 Annual Operating Hours = 4,320 hrs/yr¹
 Avg Break Specific Fuel Consumption = 7,000.0 Btu/hp-hr³

| Pollutant / Speciated Organics | Emission Factor | Units | Estimated Potential Emissions ^{4,5} (lb/hr) | Total Estimated Potential Emissions ⁹ (lb/hr) | (tpy) |
|-----------------------------------------------------|-----------------|-----------------------------|---------------------------------------------------------|-------------------------------------------------------------|-------|
| NO _x | 2.00 | g/kW-hr ⁷ | 1.03 | 7.22 | 15.60 |
| CO | 3.50 | g/kW-hr ⁷ | 1.81 | 12.64 | 27.30 |
| PM/PM ₁₀ /PM _{2.5} ⁶ | 0.020 | g/kW-hr ⁷ | 0.01 | 0.07 | 0.16 |
| SO ₂ | 2.05E-03 | lb/hp-hr ⁸ | 0.64 | 4.51 | 9.73 |
| Total HC (VOC) | 0.36 | lb/MMBtu ⁸ | 0.79 | 5.54 | 11.96 |
| Benzene | 9.33E-04 | lb/MMBtu input ⁸ | 2.05E-03 | 0.01 | 0.03 |
| Toluene | 4.09E-04 | lb/MMBtu input ⁸ | 8.99E-04 | <0.01 | 0.01 |
| Xylene | 2.85E-04 | lb/MMBtu input ⁸ | 6.26E-04 | <0.01 | <0.01 |
| 1,3-Butadiene | 3.91E-05 | lb/MMBtu input ⁸ | 8.59E-05 | <0.01 | <0.01 |
| Formaldehyde | 1.18E-03 | lb/MMBtu input ⁸ | 2.59E-03 | 0.02 | 0.04 |
| Acetaldehyde | 7.67E-04 | lb/MMBtu input ⁸ | 1.69E-03 | 0.01 | 0.03 |
| Acrolein | 9.25E-05 | lb/MMBtu input ⁸ | 2.03E-04 | <0.01 | <0.01 |
| Total PAH | 1.68E-04 | lb/MMBtu input ⁸ | 3.69E-04 | <0.01 | <0.01 |
| Total HAP's | | | 0.01 | 0.06 | 0.13 |

¹ Ratings per Engine Performance Data Sheet for Cummins Power Generation Engine QSB7-G6. The hours of operation were calculated assuming 24 hours operation per day for 180 days.

² Estimated Maximum Heat Input (MMBtu/hr) = AP-42 Average break-specific fuel consumption (Btu/hp-hr) x Power Output (hp) / 10⁻⁰⁶
 Estimated Maximum Heat Input = $\frac{7000 \text{ Btu}}{\text{hp-hr}} \times \frac{314 \text{ hp}}{1} = 2.20 \text{ MMBtu/hr}$

³ Average Break Specific Fuel Consumption taken from AP-42, Section 3.3, Table 3.3-1, Footnote c.

⁴ Hourly Emission Rate (lb/hr) = Design Power Rating (hp) x Emission Factor (g/hp-hr) x 453.59 lb/g

or
 Design Power Rating (kW) x Emission Factor (g/kW-hr) x 453.59 lb/g
 or
 Design Power Rating (hp) x Emission Factor (lb/hp-hr)

Hourly Emissions NO_x (lb/hr) = $\frac{\text{Maximum Heat Input (MMBtu/hr)} \times \text{Emission Factor (lb/MMBtu)}}{\text{2.00 g/kW-hr}} = \frac{2.20 \text{ MMBtu/hr} \times 1 \text{ lb}}{234 \text{ kW}} = 1.03 \text{ lb/hr}$

⁵ Annual Emissions (tpy) = Hourly Emissions (lb/hr) x Annual Operating Hours (hrs/yr) x 1 / 2,000 (lb/ton)
 Annual Emissions NO_x (tpy) = $\frac{1.03 \text{ lb/hr} \times 4320 \text{ hr}}{2000 \text{ ton}} = 2.23 \text{ tpy}$

⁶ All particulate matter is assumed to be less than 10 µm, therefore the emission factor and the calculated emissions are the same for PM and PM₁₀. PM₁₀/PM_{2.5} is assumed to equal PM.

⁷ Emission Factors per QSB5-G9 engine tested in accordance with 40 CFR 1065 US EPA Nonroad Tier 4(i) Regulations.

⁸ Emission factors are taken from AP-42, Chapter 3, Section 3, Table 3.3-1 (Emission Factors for Gasoline and Diesel Industrial Engines October 1996), Table 3.3-2 (Speciated Organic Compound Emission Factors for Uncontrolled Stationary Diesel Engines).

⁹ Total emission calculations = Estimated Potential Emissions x Number of Generators

DIESEL ENGINE - EMISSIONS

Source ID = Diesel Gen-9 - Gen-11
 Engine Make and Model = Cummins QSL9-G8
 Fuel Type = Diesel
 EPA Tier Standard = US EPA Tier 4(i)
 Number of Generators: 3
 Design Power Output = 323 kW¹
 Design Power Output = 433 hp¹
 Estimated Maximum Heat Input = 3.03 MMBtu/hr²
 Annual Operating Hours = 4,320 hrs/yr¹
 Avg Break Specific Fuel Consumption = 7,000.0 Btu/hp-hr³

| Pollutant / Speciated Organics | Emission Factor | Units | Estimated Potential Emissions ^{4,5} (lb/hr) | (tpy) | Total Estimated Potential Emissions ⁹ (lb/hr) | (tpy) |
|--------------------------------------------------|-----------------|-----------------------------|---------------------------------------------------------|----------|-------------------------------------------------------------|-------|
| NO _x | 2.00 | g/kW-hr ⁷ | 1.42 | 3.08 | 4.27 | 9.23 |
| CO | 3.50 | g/KW-hr ⁷ | 2.49 | 5.38 | 7.48 | 16.15 |
| PM ₁₀ /PM _{2.5} ⁶ | 0.02 | g/KW-hr ⁷ | 0.01 | 3.08E-02 | 0.04 | 0.09 |
| SO ₂ | 2.05E-03 | lb/hp-hr ⁸ | 0.89 | 1.92 | 2.66 | 5.75 |
| Total HC (VOC) | 0.36 | lb/MMBtu ⁸ | 1.09 | 2.36 | 3.27 | 7.07 |
| Benzene | 9.33E-04 | lb/MMBtu input ⁸ | 2.83E-03 | 6.11E-03 | <0.01 | 0.02 |
| Toluene | 4.09E-04 | lb/MMBtu input ⁸ | 1.24E-03 | 2.68E-03 | <0.01 | <0.01 |
| Xylene | 2.85E-04 | lb/MMBtu input ⁸ | 8.64E-04 | 1.87E-03 | <0.01 | <0.01 |
| 1,3-Butadiene | 3.91E-05 | lb/MMBtu input ⁸ | 1.19E-04 | 2.56E-04 | <0.01 | <0.01 |
| Formaldehyde | 1.18E-03 | lb/MMBtu input ⁸ | 3.58E-03 | 7.73E-03 | 0.01 | 0.02 |
| Acetaldehyde | 7.67E-04 | lb/MMBtu input ⁸ | 2.32E-03 | 5.02E-03 | <0.01 | 0.02 |
| Acrolein | 9.25E-05 | lb/MMBtu input ⁸ | 2.80E-04 | 6.06E-04 | <0.01 | <0.01 |
| Total PAH | 1.68E-04 | lb/MMBtu input ⁸ | 5.09E-04 | 1.10E-03 | <0.01 | <0.01 |
| Total HAPs | | | 0.01 | 0.03 | 0.04 | 0.08 |

¹ Ratings per Engine Performance Data Sheet for Cummins Power Generation Engine QSL9-G8. The hours of operation were calculated assuming 24 hours operation per day for 180 days.
² Estimated Maximum Heat Input (MMBtu/hr) = AP-42 Average break-specific fuel consumption (Btu/hp-hr) x Power Output (hp) / 10⁰⁶
 Estimated Maximum Heat Input = $\frac{7000 \text{ Btu}}{\text{hp-hr}} \times 433 \text{ hp} = 1000000$
³ Average Break Specific Fuel Consumption taken from AP-42, Section 3.3, Table 3.3-1, Footnote c.
⁴ Hourly Emission Rate (lb/hr) = Design Power Rating (hp) x Emission Factor (g/hp-hr) x 453.59 lb/g
 or
 Design Power Rating (kW) x Emission Factor (g/kW-hr) x 453.59 lb/g
 or
 Design Power Rating (hp) x Emission Factor (lb/hp-hr)
 Maximum Heat Input (MMBtu/hr) x Emission Factor (lb/MMBtu)
 Hourly Emissions NO_x (lb/hr) = $\frac{2.00 \text{ g}}{323 \text{ kW}} \times 453.892 \text{ g} = 1.42 \text{ lb/hr}$
⁵ Annual Emissions (tpy) = Hourly Emissions (lb/hr) x Annual Operating Hours (hrs/yr) x 1 / 2,000 (lb/ton)
 Annual Emissions NO_x (tpy) = $\frac{1.42 \text{ lb}}{\text{hr}} \times 4320 \text{ hr} = 3.08 \text{ tpy}$
⁶ All particulate matter is assumed to be less than 10 µm, therefore the emission factor and the calculated emissions are the same for PM and PM₁₀. PM₁₀/PM_{2.5} is assumed to equal PM.
⁷ Emission Factors per Q885-G9 engine tested in accordance with 40 CFR 1065 US EPA Nonroad Tier 4(i) Regulations.
⁸ Emission factors are taken from AP-42, Chapter 3, Section 3, Table 3.3-1 (Emission Factors for Gasoline and Diesel Industrial Engines October 1996), Table 3.3-2 (Speciated Organic Compound Emission Factors for Uncontrolled Stationary Diesel Engines).
⁹ Total emission calculations = Estimated Potential Emissions x Number of Generators
 ONEOK Bakken Pipeline, L.L.C. (ONEOK) | Aladdin Booster Station - Temporary Generator Operations (180 days)
 Trinity Consultants

STORAGE TANK - EMISSIONS

Storage Tank Emissions

Storage Tank Physical Characteristics and Emissions - Diesel Tanks

| ID | Contents | Tank Capacity (gal) | Net Throughput ^{1,2,3,4} (gal/yr) | Tank Orientation | Tank Diameter (ft) | Tank Height (ft) | PTE Emissions ⁵ | |
|----------------------------------------------------|----------|------------------------|-----------------------------------------------|--------------------------|-----------------------|---------------------|----------------------------|----------|
| | | | | | | | (lb/hr) | (tpy) |
| Fuel Tank 1 - Dedicated to Gen 1 (129 kW) | Diesel | 2500 | 36,720 | Vertical Fixed Roof Tank | 8 | 8 | 9.47E-05 | 4.15E-04 |
| Fuel Tank 2 - Dedicated to Gen 2 to Gen 5 (234 kW) | Diesel | 2500 | 66,528 | Vertical Fixed Roof Tank | 8 | 8 | 1.39E-04 | 6.10E-04 |
| Fuel Tank 3 - Dedicated to Gen 6 to Gen 8 (234 kW) | Diesel | 2500 | 66,528 | Vertical Fixed Roof Tank | 8 | 8 | 1.39E-04 | 6.10E-04 |
| Fuel Tank 4 - Dedicated to Gen 6 to Gen 8 (323 kW) | Diesel | 2500 | 93,312 | Vertical Fixed Roof Tank | 8 | 8 | 1.76E-04 | 7.70E-04 |
| Total VOC Emissions ⁶ | | | | | | | 0.001 | 0.002 |
| Total HAP Emissions ⁶ | | | | | | | 0.001 | 0.002 |

¹ Since temporary generator Gen 1 is being permitted for maximum of 4,320 hrs/yr and have a fuel consumption of 8.5 gal/hr at 100 % load, turnover of 14.7 per year was calculated as a conservative engineering estimate.

² Since temporary generators Gen 2 to Gen 5 are being permitted for maximum of 4,320 hrs/yr and have a fuel consumption of 15.4 gal/hr at 100 % load, turnover of 26.6 per year was calculated as a conservative engineering estimate.

³ Since temporary generators Gen 6 to Gen 8 are being permitted for maximum of 4,320 hrs/yr and have a fuel consumption of 15.4 gal/hr at 100 % load, turnover of 26.6 per year was calculated as a conservative engineering estimate.

⁴ Since temporary generators Gen 8 to Gen 11 are being permitted for maximum of 4,320 hrs/yr and have a fuel consumption of 21.6 gal/hr at 100 % load, turnover of 37.3 per year was calculated as a conservative engineering estimate.

⁵ Emissions (Working+Breathing Losses) obtained from Tanks4.09d.

⁶ All HAP emissions are conservatively assumed to be equal to VOC emissions.

Fuel Tank 1

TANKS 4.0.9d

Emissions Report - Detail Format
Tank Identification and Physical Characteristics

Identification

User Identification: Back-up Diesel Storage Tank
City: Aladdin
State: Wyoming
Company: ONEOK Bakken Pipeline, L.L.C.
Type of Tank: Vertical Fixed Roof Tank
Description: Back-up Diesel Storage Tank for temporary generators - Aladdin Booster Station

Tank Dimensions

Shell Height (ft): 8.00
Diameter (ft): 8.00
Liquid Height (ft) : 7.00
Avg. Liquid Height (ft): 4.00
Volume (gallons): 2,500.00
Turnovers: 14.70
Net Throughput(gal/yr): 36,750.00
Is Tank Heated (y/n): N

Paint Characteristics

Shell Color/Shade: White/White
Shell Condition: Good
Roof Color/Shade: White/White
Roof Condition: Good

Roof Characteristics

Type: Cone
Height (ft) 0.00
Slope (ft/ft) (Cone Roof) 0.06

Breather Vent Settings

Vacuum Settings (psig): -0.03
Pressure Settings (psig) 0.03

Meteorological Data used in Emissions Calculations: Rapid City, South Dakota (Avg Atmospheric Pressure = 13.11 psia)

TANKS 4.0.9d
Emissions Report - Detail Format
Liquid Contents of Storage Tank

Back-up Diesel Storage Tank - Vertical Fixed Roof Tank
Aladdin, Wyoming

| Mixture/Component | Daily Liquid Surf. Temperature (deg F) | | | Liquid Bulk Temp (deg F) | Vapor Pressure (psia) | | | Vapor Mol. Weight | Liquid Mass Fract. | Vapor Mass Fract. | Mol. Weight | Basis for Vapor Pressure Calculations |
|---------------------------|-------------------------------------------|-------|-------|-----------------------------------|-----------------------|--------|--------|-------------------------|--------------------------|-------------------------|----------------|------------------------------------------|
| | Month | Avg. | Min. | Max. | Avg. | Min. | Max. | | | | | |
| Distillate fuel oil no. 2 | All | 48.35 | 42.13 | 54.57 | 46.55 | 0.0043 | 0.0034 | 0.0054 | 130.0000 | | 188.00 | Option 1: VP40 = .0031 VP50 = .0045 |

TANKS 4.0.9d Emissions Report - Detail Format Detail Calculations (AP-42)

Back-up Diesel Storage Tank - Vertical Fixed Roof Tank Aladdin, Wyoming

| | |
|--------------------------------------------------------------------|------------|
| Annual Emission Calculations | |
| Standing Losses (lb): | 0.3394 |
| Vapor Space Volume (cu ft): | 205.2507 |
| Vapor Density (lb/cu ft): | 0.0001 |
| Vapor Space Expansion Factor: | 0.0445 |
| Vented Vapor Saturation Factor: | 0.9991 |
| Tank Vapor Space Volume: | |
| Vapor Space Volume (cu ft): | 205.2507 |
| Tank Diameter (ft): | 8.0000 |
| Vapor Space Outage (ft): | 4.0833 |
| Tank Shell Height (ft): | 8.0000 |
| Average Liquid Height (ft): | 4.0000 |
| Roof Outage (ft): | 0.0833 |
| Roof Outage (Cone Roof) | |
| Roof Outage (ft): | 0.0833 |
| Roof Height (ft): | 0.0000 |
| Roof Slope (ft/ft): | 0.0625 |
| Shell Radius (ft): | 4.0000 |
| Vapor Density | |
| Vapor Density (lb/cu ft): | 0.0001 |
| Vapor Molecular Weight (lb/lb-mole): | 130.0000 |
| Vapor Pressure at Daily Average Liquid Surface Temperature (psia): | 0.0043 |
| Daily Avg. Liquid Surface Temp. (deg. R): | 508.0208 |
| Daily Average Ambient Temp. (deg. F): | 46.5292 |
| Ideal Gas Constant R (psia cuft / (lb-mol-deg R): | 10.731 |
| Liquid Bulk Temperature (deg. R): | 506.2192 |
| Tank Paint Solar Absorptance (Shell): | 0.1700 |
| Tank Total Solar Insulation Factor (Btu/sqft day): | 0.1700 |
| | 1.348.0802 |
| Vapor Space Expansion Factor | |
| Vapor Space Expansion Factor: | 0.0445 |
| Daily Vapor Temperature Range (deg. R): | 24.8789 |
| Daily Vapor Pressure Range (psia): | 0.0020 |
| Breather Vent Press. Setting Range (psia): | 0.0600 |
| Vapor Pressure at Daily Average Liquid Surface Temperature (psia): | 0.0043 |
| Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia): | 0.0034 |
| Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia): | 0.0054 |
| Daily Avg. Liquid Surface Temp. (deg R): | 508.0208 |
| Daily Min. Liquid Surface Temp. (deg R): | 501.8011 |
| Daily Max. Liquid Surface Temp. (deg R): | 514.2406 |
| Daily Ambient Temp. Range (deg. R): | 25.6417 |
| Vented Vapor Saturation Factor | |
| Vented Vapor Saturation Factor: | 0.9991 |
| Vapor Pressure at Daily Average Liquid Surface Temperature (psia): | 0.0043 |
| Vapor Space Outage (ft): | 4.0833 |

| | |
|--------------------------------------------------------------------|-------------|
| Working Losses (lb): | 0.4856 |
| Vapor Molecular Weight (lb/lb-mole): | 130.0000 |
| Vapor Pressure at Daily Average Liquid Surface Temperature (psia): | 0.0043 |
| Annual Net Throughput (gallr.): | 36,750.0000 |
| Annual Turnovers: | 14,7000 |
| Turnover Factor: | 1.0000 |
| Maximum Liquid Volume (gal): | 2,500.0000 |
| Maximum Liquid Height (ft): | 7.0000 |
| Tank Diameter (ft): | 8.0000 |
| Working Loss Product Factor: | 1.0000 |
| Total Losses (lb): | 0.8250 |

TANKS 4.0.9d
Emissions Report - Detail Format
Individual Tank Emission Totals

Emissions Report for: Annual

Back-up Diesel Storage Tank - Vertical Fixed Roof Tank
Aladdin, Wyoming

| Components | Losses(lbs) | | Total Emissions |
|---------------------------|--------------|----------------|-----------------|
| | Working Loss | Breathing Loss | |
| Distillate fuel oil no. 2 | 0.49 | 0.34 | 0.83 |

Fuel Tank 2 and Fuel Tank 3

TANKS 4.0.9d
Emissions Report - Detail Format
Tank Identification and Physical Characteristics

Identification
User Identification: Back-up Diesel Storage Tank
City: Aladdin
State: Wyoming
Company: ONEOK Bakken Pipeline, L.L.C.
Type of Tank: Vertical Fixed Roof Tank
Description: Back-up Diesel Storage Tank for temporary generators - Aladdin Booster Station

Tank Dimensions
Shell Height (ft): 8.00
Diameter (ft): 8.00
Liquid Height (ft) : 7.00
Avg. Liquid Height (ft): 4.00
Volume (gallons): 2,500.00
Turnovers: 26.60
Net Throughput(gal/yr): 66,500.00
Is Tank Heated (y/n): N

Paint Characteristics
Shell Color/Shade: White/White
Shell Condition: Good
Roof Color/Shade: White/White
Roof Condition: Good

Roof Characteristics
Type: Cone
Height (ft) 0.00
Slope (ft/ft) (Cone Roof) 0.06

Breather Vent Settings
Vacuum Settings (psig): -0.03
Pressure Settings (psig) 0.03

Meteorological Data used in Emissions Calculations: Rapid City, South Dakota (Avg Atmospheric Pressure = 13.11 psia)

TANKS 4.0.9d
Emissions Report - Detail Format
Liquid Contents of Storage Tank

Back-up Diesel Storage Tank - Vertical Fixed Roof Tank
Aladdin, Wyoming

| Mixture/Component | Daily Liquid Surf. Temperature (deg F) | | | Liquid Bulk Temp (deg F) | Vapor Pressure (psia) | | | Vapor Mol. Weight | Liquid Mass Fract. | Vapor Mass Fract. | Mol. Weight | Basis for Vapor Pressure Calculations |
|---------------------------|-------------------------------------------|-------|-------|-----------------------------------|-----------------------|--------|--------|-------------------------|--------------------------|-------------------------|----------------|------------------------------------------|
| | Month | Avg. | Min. | Max. | Avg. | Min. | Max. | | | | | |
| Distillate fuel oil no. 2 | All | 48.35 | 42.13 | 54.57 | 46.55 | 0.0043 | 0.0034 | 0.0054 | 130.0000 | | 188.00 | Option 1: VP40 = .0031 VP50 = .0045 |

TANKS 4.0.9d
Emissions Report - Detail Format
Detail Calculations (AP-42)

Back-up Diesel Storage Tank - Vertical Fixed Roof Tank
Aladdin, Wyoming

| | |
|--------------------------------------------------------------------|------------|
| Annual Emission Calculations | |
| Standing Losses (lb): | 0.3394 |
| Vapor Space Volume (cu ft): | 205.2507 |
| Vapor Density (lb/cu ft): | 0.0001 |
| Vapor Space Expansion Factor: | 0.0445 |
| Vented Vapor Saturation Factor: | 0.9991 |
| Tank Vapor Space Volume: | |
| Vapor Space Volume (cu ft): | 205.2507 |
| Tank Diameter (ft): | 8.0000 |
| Vapor Space Outage (ft): | 4.0833 |
| Tank Shell Height (ft): | 8.0000 |
| Average Liquid Height (ft): | 4.0000 |
| Roof Outage (ft): | 0.0833 |
| Roof Outage (Cone Roof) | |
| Roof Outage (ft): | 0.0833 |
| Roof Height (ft): | 0.0000 |
| Roof Slope (ft/ft): | 0.0625 |
| Shell Radius (ft): | 4.0000 |
| Vapor Density | |
| Vapor Density (lb/cu ft): | 0.0001 |
| Vapor Molecular Weight (lb/lb-mole): | 130.0000 |
| Vapor Pressure at Daily Average Liquid Surface Temperature (psia): | 0.0043 |
| Daily Avg. Liquid Surface Temp. (deg. R): | 508.0208 |
| Daily Average Ambient Temp. (deg. F): | 46.5292 |
| Ideal Gas Constant R (psia cu ft / (lb-mol-deg R)): | 10.731 |
| Liquid Bulk Temperature (deg. R): | 506.2192 |
| Tank Paint Solar Absorptance (Shell): | 0.1700 |
| Tank Paint Solar Absorptance (Roof): | 0.1700 |
| Daily Total Solar Insulation Factor (Btu/sq ft day): | 1,348.0802 |
| Vapor Space Expansion Factor | |
| Vapor Space Expansion Factor: | 0.0445 |
| Daily Vapor Temperature Range (deg. R): | 24.8789 |
| Daily Vapor Pressure Range (psia): | 0.0020 |
| Breather Vent Press. Setting Range (psia): | 0.0600 |
| Vapor Pressure at Daily Average Liquid Surface Temperature (psia): | 0.0043 |
| Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia): | 0.0034 |
| Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia): | 0.0054 |
| Daily Avg. Liquid Surface Temp. (deg R): | 508.0208 |
| Daily Min. Liquid Surface Temp. (deg R): | 501.8011 |
| Daily Max. Liquid Surface Temp. (deg R): | 514.2406 |
| Daily Ambient Temp. Range (deg. R): | 25.6417 |
| Vented Vapor Saturation Factor | |
| Vented Vapor Saturation Factor: | 0.9991 |
| Vapor Pressure at Daily Average Liquid Surface Temperature (psia): | 0.0043 |
| Vapor Space Outage (ft): | 4.0833 |

| | |
|--------------------------------------------------------------------|------------|
| Working Losses (lb) | 0.8787 |
| Vapor Molecular Weight (lb/lb-mole): | 130.0000 |
| Vapor Pressure at Daily Average Liquid Surface Temperature (psia): | 0.0043 |
| Annual Net Throughput (gall/yr): | 66,500,000 |
| Annual Turnovers: | 26,6000 |
| Turnover Factor: | 1,0000 |
| Maximum Liquid Volume (gal): | 2,500,0000 |
| Maximum Liquid Height (ft): | 7,0000 |
| Tank Diameter (ft) | 8,0000 |
| Working Loss Product Factor: | 1,0000 |
| Total Losses (lb): | 1,2182 |

TANKS 4.0.9d
Emissions Report - Detail Format
Individual Tank Emission Totals

Emissions Report for: Annual

Back-up Diesel Storage Tank - Vertical Fixed Roof Tank
Aladdin, Wyoming

| | Losses (lbs) | |
|---------------------------|--------------|-----------------|
| Components | Working Loss | Breathing Loss |
| Distillate fuel oil no. 2 | 0.88 | 0.34 |
| | | Total Emissions |
| | | 1.22 |

Fuel Tank 4

TANKS 4.0.9d
Emissions Report - Detail Format
Tank Identification and Physical Characteristics

Identification
User Identification: Back-up Diesel Storage Tank
City: Aladdin
State: Wyoming
Company: ONEOK Bakken Pipeline, L.L.C.
Type of Tank: Vertical Fixed Roof Tank
Description: Back-up Diesel Storage Tank for temporary generators - Aladdin Booster Station

Tank Dimensions
Shell Height (ft): 8.00
Diameter (ft): 8.00
Liquid Height (ft) : 7.00
Avg. Liquid Height (ft): 4.00
Volume (gallons): 2,500.00
Turnovers: 37.30
Net Throughput(gal/yr): 93,250.00
Is Tank Heated (y/n): N

Paint Characteristics
Shell Color/Shade: White/White
Shell Condition: Good
Roof Color/Shade: White/White
Roof Condition: Good

Roof Characteristics
Type: Cone
Height (ft) 0.00
Slope (ft/ft) (Cone Roof) 0.06

Breather Vent Settings
Vacuum Settings (psig): -0.03
Pressure Settings (psig) 0.03

Meteorological Data used in Emissions Calculations: Rapid City, South Dakota (Avg Atmospheric Pressure = 13.11 psia)

TANKS 4.0.9d
Emissions Report - Detail Format
Liquid Contents of Storage Tank

Back-up Diesel Storage Tank - Vertical Fixed Roof Tank
Aladdin, Wyoming

| Mixture/Component | Daily Liquid Surf. Temperature (deg F) | | | Liquid Bulk Temp (deg F) | Vapor Pressure (psia) | | | Vapor Mol. Weight | Liquid Mass Fract. | Vapor Mass Fract. | Mol. Weight | Basis for Vapor Pressure Calculations |
|---------------------------|-------------------------------------------|-------|-------|-----------------------------------|-----------------------|--------|--------|-------------------------|--------------------------|-------------------------|----------------|------------------------------------------|
| | Month | Avg. | Min. | Max. | Avg. | Min. | Max. | | | | | |
| Distillate fuel oil no. 2 | All | 48.35 | 42.13 | 54.57 | 46.55 | 0.0043 | 0.0034 | 0.0054 | 130.0000 | | 188.00 | Option 1: VP40 = .0031 VP50 = .0045 |

TANKS 4.0.9d
Emissions Report - Detail Format
Detail Calculations (AP-42)

Back-up Diesel Storage Tank - Vertical Fixed Roof Tank
Aladdin, Wyoming

| Annual Emission Calculations | |
|--------------------------------------------------------------------|------------|
| Standing Losses (lb): | 0.3394 |
| Vapor Space Volume (cu ft): | 205.2507 |
| Vapor Density (lb/cu ft): | 0.0001 |
| Vapor Space Expansion Factor: | 0.0445 |
| Vented Vapor Saturation Factor: | 0.9991 |
| Tank Vapor Space Volume: | |
| Vapor Space Volume (cu ft): | 205.2507 |
| Tank Diameter (ft): | 8.0000 |
| Vapor Space Outage (ft): | 4.0833 |
| Tank Shell Height (ft): | 8.0000 |
| Average Liquid Height (ft): | 4.0000 |
| Roof Outage (ft): | 0.0833 |
| Roof Outage (Cone Roof) | |
| Roof Outage (ft): | 0.0833 |
| Roof Height (ft): | 0.0000 |
| Roof Slope (ft/ft): | 0.0625 |
| Shell Radius (ft): | 4.0000 |
| Vapor Density | |
| Vapor Density (lb/cu ft): | 0.0001 |
| Vapor Molecular Weight (lb/lb-mole): | 130.0000 |
| Vapor Pressure at Daily Average Liquid Surface Temperature (psia): | 0.0043 |
| Daily Avg. Liquid Surface Temp. (deg. R): | 508.0208 |
| Daily Average Ambient Temp. (deg. F): | 46.5292 |
| Ideal Gas Constant R (psia cuft / (lb-mol-deg R)): | 10.731 |
| Liquid Bulk Temperature (deg. R): | 506.2192 |
| Tank Paint Solar Absorptance (Shell): | 0.1700 |
| Tank Paint Solar Absorptance (Roof): | 0.1700 |
| Daily Total Solar Insulation Factor (Btu/sqft day): | 1,348.0802 |
| Vapor Space Expansion Factor | |
| Vapor Space Expansion Factor | 0.0445 |
| Daily Vapor Temperature Range (deg. R): | 24.8789 |
| Daily Vapor Pressure Range (psia): | 0.0020 |
| Breather Vent Press. Setting Range (psia): | 0.0600 |
| Vapor Pressure at Daily Average Liquid Surface Temperature (psia): | 0.0043 |
| Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia): | 0.0034 |
| Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia): | 0.0054 |
| Daily Avg. Liquid Surface Temp. (deg R): | 508.0208 |
| Daily Min. Liquid Surface Temp. (deg R): | 501.8011 |
| Daily Max. Liquid Surface Temp. (deg R): | 514.2406 |
| Daily Ambient Temp. Range (deg. R): | 25.6417 |
| Vented Vapor Saturation Factor | |
| Vented Vapor Saturation Factor: | 0.9991 |
| Vapor Pressure at Daily Average Liquid Surface Temperature (psia): | 0.0043 |
| Vapor Space Outage (ft): | 4.0833 |

| | |
|--------------------------------------------------------------------|-------------|
| Working Losses (lb): | |
| Vapor Molecular Weight (lb/lb-mole): | 1.1964 |
| Vapor Pressure at Daily Average Liquid Surface Temperature (psia): | 130.0000 |
| Annual Net Throughput (gall./yr.): | 0.0043 |
| Annual Turnovers: | 93,250.0000 |
| Turnover Factor: | 37.3000 |
| Maximum Liquid Volume (gall.): | 0.9710 |
| Maximum Liquid Height (ft): | 2,500.0000 |
| Tank Diameter (ft): | 7.0000 |
| Working Loss Product Factor: | 8.0000 |
| | 1.0000 |
| Total Losses (lb) | 1.5358 |

TANKS 4.0.9d
Emissions Report - Detail Format
Individual Tank Emission Totals

Emissions Report for: Annual

Back-up Diesel Storage Tank - Vertical Fixed Roof Tank
Aladdin, Wyoming

| | | Losses(lbs) | |
|---------------------------|--------------|----------------|-----------------|
| Components | Working Loss | Breathing Loss | Total Emissions |
| Distillate fuel oil no. 2 | 1.20 | 0.34 | 1.54 |

4. BACT REQUIREMENTS

A Best Available Control Technology (BACT) analysis is required to satisfy the emissions control requirements in permits for air emission sources, covered in Chapter 6 Section 2(c)(v) of the WDEQ-AQD Standards and Regulations.

The diesel generator engine (Diesel Gen 1) is EPA Tier 4i (interim) certified and falls under the category of engines which are rated between $75 \text{ kW} \leq \text{kW} < 130 \text{ kW}$ and manufactured in 2011. This limits their emissions of $\text{NO}_x + \text{HC}$ to 4.0 g/kW-hr . It also limits the emissions of CO and PM to 3.50 g/kW-hr and 0.02 g/kW-hr , respectively.

The diesel generator engines (Diesel Gen 2-8 and Diesel Gen 9-11) are EPA Tier 4i (interim) certified and fall under the category of engines which are rated between $225 \text{ kW} \leq \text{kW} < 450 \text{ kW}$ and manufactured in 2011. This limits their emissions of $\text{NO}_x + \text{HC}$ to 4.0 g/kW-hr . It also limits the emissions of CO and PM to 3.50 g/kW-hr and 0.02 g/kW-hr , respectively.

Compliance with Tier 4i emission standards via a tier certified engine is proposed as BACT for NO_x , CO, and VOC for these temporary generator engines. The diesel engines will emit SO_2 due to the thermal oxidation of sulfur in the fuel oil. The use of ultra-low sulfur diesel (less than 15 ppm of sulfur) is proposed as SO_2 BACT for these temporary generator engines.

5. REGULATORY ANALYSIS

This section addresses the applicability of the federal and state regulatory programs for the proposed temporary generator engines and associated tanks at the Aladdin Booster Station.

5.1. WYOMING STATE REGULATIONS

5.1.1. WAQSR Chapter 3, Section 2 (C3 S2)

The generator engines and associated tanks proposed at the Aladdin Booster Station will comply with the opacity requirements of this section:

Visible emissions of any containment discharged into the atmosphere from any single new source of emission whatsoever as determined by a qualified observer shall be limited to 20 percent opacity;

5.1.2. WAQSR Chapter 6, Section 2 (C6 S2)

ONEOK is submitting this construction application in accordance with C6 S2(a) for an emission source at a facility.

5.2. NEW SOURCE PERFORMANCE STANDARDS

The following NSPS subparts in 40 CFR Part 60 are potentially applicable for the proposed temporary generator engines and associated tanks at the Aladdin Booster Station.

Table 5-1. Potentially Applicable NSPS Subparts

| Subpart | Description | Applicability | Affected Sources |
|--------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|------------------|
| Subpart A | General Provisions | No | N/A |
| Subpart IIII | Standards of Performance for Stationary Compression Ignition Internal Combustion Engines | No | N/A |
| Subpart Kb | Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for which Construction, Reconstruction, or Modifications commenced after July 23,1984 | No | N/A |

Each potentially applicable NSPS subpart of 40 CFR Part 60 is discussed in the subsections below.

5.2.1. Subpart A - General Provisions

Any source subject to a source-specific NSPS is also subject to the general provisions of NSPS Subpart A. Unless specifically excluded by the source-specific NSPS, Subpart A generally requires initial construction notification, initial startup notification, performance tests, performance test date initial notification, general monitoring requirements, general recordkeeping requirements, and semiannual monitoring and/or excess emission

reports. As discussed below, the temporary generator engines are not subject to NSPS Subpart IIII and are therefore not subject to NSPS Subpart A.

5.2.2. Subpart IIII Compression Ignition Internal Combustion Engines

NSPS Subpart IIII establishes requirements for owners/operators of stationary compression ignition internal combustion engines that commenced construction (ordered an engine) after July 11, 2005 and manufactured after April 1, 2006.

NSPS IIII defines stationary internal combustion engines as follows (40 CFR 60.4219):

*Stationary internal combustion engine means any internal combustion engine, except combustion turbines, that converts heat energy into mechanical work and is not mobile. Stationary ICE differ from mobile ICE in that a stationary internal combustion engine **is not a non-road engine** as defined at 40 CFR 1068.30 (excluding paragraph (2)(ii) of that definition), and is not used to propel a motor vehicle, aircraft, or a vehicle used solely for competition. Stationary ICE include reciprocating ICE, rotary ICE, and other ICE, except combustion turbines.*

40 CFR Part 1068 is the General Compliance Provisions for Nonroad Programs. 40 CFR 1068.30 provides the following definitions for a non-road engine:

A non-road engine is any internal combustion engine;

- i. In or on a piece of equipment that is self-propelled or serves a dual purpose by both propelling itself and performing another function (such as garden tractors, off-highway mobile cranes and bulldozers); or*
- ii. In or on a piece of equipment that is intended to be propelled while performing its function (such as lawnmowers and string trimmers); or*
- iii. That, by itself or in or on a piece of equipment, is portable or transportable, meaning designed to be and capable of being carried or moved from one location to another. Indicia of transportability include, but are not limited to, wheels, skids, carrying handles, dolly, trailer, or platform.*

40 CFR 1068.30 also states that an internal combustion portable engine is not a non-road engine, if it will remain for more than 12 consecutive months at a location and a location is defined as any single site at a building, structure, facility, or installation. These definitions establish that non-road engines are not subject to the NSPS and that portable engines that are at a location will be considered as non-road engines if they remain at the same location for less than 12 consecutive months. The EPA also stated in the response to comments Subpart IIII document that “*Portable electric generating engines that remain in one location for less than 12 consecutive months are considered nonroad engines and are subject to requirements for nonroad engines*”.

The Diesel Engines (Gen 1 to Gen 11) will be at the site for a period of less than 12 consecutive months and can be considered to be non-road engines and hence, are not subject to the requirements of NSPS IIII.

5.2.3. Subpart Kb - Volatile Organic Liquid Storage Vessels

NSPS Subpart Kb applies to volatile organic liquid storage vessels constructed, reconstructed, or modified after July 23, 1984 with a capacity of 19,813 gallons (gal) or more. ONEOK proposes to install four (4) 2,500 gallon diesel fuel oil tanks; therefore, since all storage tanks will be smaller than 19,813 gal, this subpart does not apply to this facility.

5.3. NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS

The facility will continue to remain an area source of HAPs. The following subparts in 40 CFR Part 63 are potentially applicable for the proposed temporary generator engines and associated tanks at the Aladdin Booster Station.

Table 5-2 Potentially Applicable NESHAP Subparts

| Subpart | Description | Applicability | Affected Sources |
|--------------|-----------------------------------------------------------------------------------------------------|---------------|------------------|
| Subpart A | General Provisions | No | No |
| Subpart ZZZZ | National Emission Standards for Hazardous Air Pollutants: Reciprocating Internal Combustion Engines | No | No |

Each potentially applicable Subpart of 40 CFR Part 63 is discussed in the subsections below.

5.3.1. Subpart A - General Provisions

Any source subject to a source-specific NESHAP is also subject to the general provisions of NESHAP Subpart A. Unless specifically excluded by the source-specific NESHAP, Subpart A generally requires initial construction notification, initial startup notification, performance tests, performance test date initial notification, general monitoring requirements, general recordkeeping requirements, and semiannual monitoring and/or excess emission reports. As discussed below, there are no NESHAP regulations that applies to the proposed temporary generator engines operation. Therefore, NESHAP Subpart A will not apply.

5.3.2. Subpart ZZZZ - National Emission Standards for Hazardous Air Pollutants: Reciprocating Internal Combustion Engines

The NESHAP found in 40 CFR 63, Subpart ZZZZ was designed to regulate emissions from stationary reciprocating internal combustion engines (RICE) at both major and area sources of hazardous air pollutants.

The NESHAP contains the same definition of stationary RICE as defined in the above NSPS Section. Non-road engines are exempt from the requirements of NESHAP ZZZZ. Portable RICE engines will be considered non-road engines if they do not remain in a location for more than 12 consecutive months.

The Diesel Engines (Gen 1 to Gen 11) will be at the site for a period of less than 12 consecutive months and can be considered to be non-road engines and hence, are not subject to the requirements of NESHAP ZZZZ.

6. AMBIENT AIR QUALITY ANALYSIS

ONEOK requests that an ambient impact modeling analysis for this permit application be waived, considering the usage, location (generators operational at a designated attainment area in Wyoming for criteria pollutants.³) and the temporary nature of operations for these generator engines and tanks⁴.

³ The United States Protection Agency (U.S. EPA) Green Book. Source: <http://www.epa.gov/oar/oaqps/greenbook/ancl.html#WYOMING>, accessed July 2015.

⁴ Per communication between Mr. Cole Anderson (WDEQ) and Ms. Kim Ayotte (Trinity) on June 15, 2015 – Modeling will be required only when the sources operate for a period of more than 180 days.

7. WDEQ FORMS

This section includes all of the applicable construction permit application forms, as listed below:

- Permit Application Form
- Specific Emission Unit Attributes Forms
- Emissions Information Forms
- Release Point Information Forms



Department of Environmental Quality Air Quality Division

Permit Application Form

Is this a revision to an existing application?

Yes _____

No ☒ x

Date of Application: 7/16/2015

Previous Application #:

N/A

COMPANY INFORMATION:

Company Name: ONEOK Bakken Pipeline, L.L.C.
Address: P.O Box 29, 2001 South Highway 81
City: Medford State: Oklahoma Zip Code: 73759-3700
Country: USA Phone Number: (580) 395-6322

FACILITY INFORMATION:

Facility Name: Aladdin Booster Station
New Facility or Existing Facility: New
Facility Description: Temporary Generators for providing power to pumps at the Booster Station
Facility Class: Minor Operating Status: Operating
Facility Type: Generator, Stationary

For Oil & Gas Production Sites ONLY:

First Date of Production (FDOP)/Date of Modification:

Does production at this facility contain H2S?*

**If yes, contact the Division.*

API Number(s):

NAICS Code:

FACILITY LOCATION:

*Enter the facility location in either the latitude/longitude area or section/township/range area. Both are not required.

Physical Address:

City: Zip Code:
State: County:

OR

Latitude: 44.7015 Longitude: -104.20328 County: Crook
Quarter Quarter: Quarter:
Section: 5 Township: 54N Range: 61W

For longitude and latitude, use NAD 83/WGS84 datum and 5 digits after the decimal (i.e. 41.12345, -107.56789)

CONTACT INFORMATION:

*Note that an Environmental AND NSR Permitting Contact is required for your application to be deemed complete by the agency.

Title: Mr. First Name: Patrick
Last Name: Allison

Company Name: ONEOK Bakken Pipeline, L.L.C.
Job Title: Environmental Engineer

Address: P.O Box 29, 2001 South Highway 81
City: Medford State: Oklahoma

Zip Code: 73759-3700

Primary Phone No.: (580) 395-6322

E-mail: Patrick.Allison@oneok.com

Mobile Phone No.:

Fax No.:

Contact Type: Environmental contact

Start Date:

Additional Contact Type (if needed): N/A
Title: First Name: _____
Last Name: _____
Company Name: _____
Job Title: _____
Address: _____
City: _____ State:
Zip Code: _____
Primary Phone No.: _____ E-mail: _____
Mobile Phone No.: _____ Fax No.: _____
Contact Type: Start Date: _____

FACILITY APPLICATION INFORMATION:

General Info:

Has the facility changed location or is it a new/ greenfield facility?
Has a Land Use Planning document been included in this application?
Is the facility located in a sage grouse core area?*

No
 No
 No

If the facility is in a sage grouse core area, what is the WER number?

* For questions about sage grouse core area, contact WY Game & Fish Department.

Federal Rules Applicability - Facility Level:

Prevention of Significant Deterioration (PSD):

No

Non-Attainment New Source Review:

No

Modeling Section:

Has the Air Quality Division been contacted to determine if modeling is required?
Is a modeling analysis part of this application?

Yes
 No

Is the proposed project subject to Prevention of Significant Deterioration (PSD) requirements?

No

Has the Air Quality Division been notified to schedule a pre-application meeting?

No

Has a modeling protocol been submitted to and approved by the Air Quality Division?

No

Has the Air Quality Division received a Q/D analysis to submit to the respective FLMs to determine the need for an AQRV analysis?

No

Required Attachments:

Facility Map ☒
Process Flow Diagram ☒
Modeling Analysis (if applicable) ☐
Land Use Planning Document ☐
Detailed Project Description ☒
Emissions Calculations ☒

I, Walter Allen VP NGL Pipelines and Terminals
Responsible Official (Printed Name) Title

an Official Representative of the Company, state that I have knowledge of the facts herein set forth and that the same are true and correct to the best of my knowledge and belief. I further certify that the operational information provided and emission rates listed on this application reflect the anticipated emissions due to the operation of this facility. The facility will operate in compliance with all applicable Wyoming Air Quality Standards and Regulations.

Signature: Walter Allen
(ink)

Date: 7/16/15

Specific Emission Unit Attributes:

Engine

Company Equipment ID: Gen 1
Company Equipment Description: Temporary Diesel Generator Engine to power buildings and other areas of the booster station
Operating Status: Operating
Initial Construction Commencement Date: 5/29/2015
Initial Operation Commencement Date: 5/29/2015
Most Recent Construction/ Modification Commencement Date: N/A

Most Recent Operation Commencement Date: N/A

Select reason(s) for this emissions unit being included in this application (must be completed regardless of date of installation or modification):

Reason: Construction (Greenfield/New Facility)

If reason is **Reconstruction** or **Temporary Permit** or **Other**, please explain below:

Name Plate Rating: 173 Units: hp
Site Rating: 173 Units: hp
Primary Fuel Type: Diesel
Secondary Fuel Type:
Model Name and Number: Cummins, QSB5-G9
Engine Type: Compression Ignition
Serial Number Tracking Table:
Serial Number: TBD Order Date: TBD
Manufacturer Name: Cummins
Construction/Installation Commencement Date: 5/29/2015
Operation Commencement/ Start-up Date: 5/29/2015
Manufacture Date: Aug-12
Btu Content: 137,000 Units: BTU/gallon
Fuel Sulfur Content: Neg Units:
Type of Service: Other

SCC Codes: List all Source Classification Code(s) (SCC) that describe the process(es) performed by the emission source (e.g., 1-02-002-04).

20100102

Potential Operating Schedule: Provide the operating schedule for this emission unit.

Hours/day: 24

Hours/year: 4,320

Control Equipment:

If yes, please fill out and attach the appropriate Control Device and Release Point Information worksheets.

Best Available Control Technology (BACT): Was a BACT Analysis completed for this emission unit?

☒ Yes ☐ No

Pollutant: NO_x, CO, PM and SO₂

Proposed BACT: Emission Standards of EPA Tier 4 and NSPS IIII sulfur content in fuel limit

*If yes, attach BACT Analysis with this application.

Lowest Achievable Emission Rate (LAER): Was a LAER Analysis completed for this emission unit?

☐ Yes ☒ No

Pollutant: _____

Proposed LAER: _____

*If yes, attach LAER Analysis with this application.

Federal and State Rule Applicability:

New Source Performance Standards (NSPS):

*New Source Performance Standard are listed under 40 CFR 60-
Standards of Performance for New Stationary Sources.*

NSPS Subpart: _____

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 61):

*National Emissions Standards for Hazardous Air Pollutants (NESHAP Part 61) are listed under 40 CFR 61.
(These include asbestos, benzene, beryllium, mercury, and vinyl chloride).*

Part 61 NESHAP Subpart: _____

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63):

*National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63)
standards are listed under 40 CFR 63*

Part 63 NESHAP Subpart: _____

Prevention of Significant Deterioration (PSD):

These rules are found under WAQSR Chapter 6, Section 4.

Non-Attainment New Source Review:

These rules are found under WAQSR Chapter 6, Section 13.

Specific Emission Unit Attributes:

Engine

| | | | |
|------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------|--|--|
| Company Equipment ID: | Gen 2 | | |
| Company Equipment Description: | Temporary Diesel Generator Engine to power pumps | | |
| Operating Status: | Operating | | |
| Initial Construction Commencement Date: | 5/29/2015 | | |
| Initial Operation Commencement Date: | 5/29/2015 | | |
| Most Recent Construction/ Modification Commencement Date: | N/A | | |
| Most Recent Operation Commencement Date: | N/A | | |
| Select reason(s) for this emissions unit being included in this application (must be completed regardless of date of installation or modification): | | | |
| Reason: | Construction (Greenfield/New Facility) | | |

If reason is **Reconstruction** or **Temporary Permit** or **Other**, please explain below:

| | | | |
|----------------------------------------------|----------------------|-------------|------------|
| Name Plate Rating: | 314 | Units: | hp |
| Site Rating: | 314 | Units: | hp |
| Primary Fuel Type: | Diesel | | |
| Secondary Fuel Type: | | | |
| Model Name and Number: | Cummins, QSB7-G6 | | |
| Engine Type: | Compression Ignition | | |
| Serial Number Tracking Table: | | | |
| Serial Number: | TBD | Order Date: | TBD |
| Manufacturer Name: | Cummins | | |
| Construction/Installation Commencement Date: | 5/29/2015 | | |
| Operation Commencement/ Start-up Date: | 5/29/2015 | | |
| Manufacture Date: | Feb-11 | | |
| Btu Content: | 137,000 | Units: | BTU/gallon |
| Fuel Sulfur Content: | Neg | Units: | |
| Type of Service: | Other | | |

SCC Codes: List all Source Classification Code(s) (SCC) that describe the process(es) performed by the emission source (e.g., 1-02-002-04).

20100102

| | |
|--------------------------------------|--------------------------------------------------------|
| Potential Operating Schedule: | Provide the operating schedule for this emission unit. |
| Hours/day: | 24 |
| Hours/year: | 4320 |

Control Equipment:

If yes, please fill out and attach the appropriate Control Device and Release Point Information worksheets.

Best Available Control Technology (BACT): Was a BACT Analysis completed for this emission unit?

☒ Yes ☐ No

Pollutant: NO_x, CO, PM and SO₂

Proposed BACT: Emission Standards of EPA Tier 4 and NSPS IIII sulfur content in fuel limit

*If yes, attach BACT Analysis with this application.

Lowest Achievable Emission Rate (LAER): Was a LAER Analysis completed for this emission unit?

☐ Yes ☒ No

Pollutant: _____

Proposed LAER: _____

*If yes, attach LAER Analysis with this application.

Federal and State Rule Applicability:

New Source Performance Standards (NSPS):

*New Source Performance Standard are listed under 40 CFR 60-
Standards of Performance for New Stationary Sources.*

NSPS Subpart: _____

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 61):

*National Emissions Standards for Hazardous Air Pollutants (NESHAP Part 61) are listed under 40 CFR 61.
(These include asbestos, benzene, beryllium, mercury, and vinyl chloride).*

Part 61 NESHAP Subpart: _____

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63):

*National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63)
standards are listed under 40 CFR 63*

Part 63 NESHAP Subpart: _____

Prevention of Significant Deterioration (PSD):

These rules are found under WAQSR Chapter 6, Section 4.

Non-Attainment New Source Review:

These rules are found under WAQSR Chapter 6, Section 13.

Specific Emission Unit Attributes:

Engine

Company Equipment ID: Gen 3
Company Equipment Description: Temporary Diesel Generator Engine to power pumps

Operating Status: Operating
Initial Construction Commencement Date: 5/29/2015
Initial Operation Commencement Date: 5/29/2015
Most Recent Construction/ Modification
Commencement Date: N/A

Most Recent Operation Commencement Date: N/A

Select reason(s) for this emissions unit being included in this application (must be completed regardless of date of installation or modification):

Reason: Construction (Greenfield/New Facility)

If reason is **Reconstruction** or **Temporary Permit** or **Other**, please explain below:

Name Plate Rating: 314 Units: hp
Site Rating: 314 Units: hp
Primary Fuel Type: Diesel
Secondary Fuel Type:
Model Name and Number: Cummins, QSB7-G6
Engine Type: Compression Ignition
Serial Number Tracking Table:
Serial Number: TBD Order Date: TBD
Manufacturer Name: Cummins
Construction/Installation Commencement Date: 5/29/2015
Operation Commencement/ Start-up Date: 5/29/2015
Manufacture Date: Feb-11
Btu Content: 137,000 Units: BTU/gallon
Fuel Sulfur Content: Neg Units:
Type of Service: Other

SCC Codes: List all Source Classification Code(s) (SCC) that describe the process(es) performed by the emission source (e.g., 1-02-002-04).

20100102

Potential Operating Schedule: Provide the operating schedule for this emission unit.

Hours/day: 24
Hours/year: 4320

Control Equipment:

If yes, please fill out and attach the appropriate Control Device and Release Point Information worksheets.

Best Available Control Technology (BACT): Was a BACT Analysis completed for this emission unit?

☒ Yes ☐ No

Pollutant: NO_x, CO, PM and SO₂

Proposed BACT: Emission Standards of EPA Tier 4 and NSPS IIII sulfur content in fuel limit

*If yes, attach BACT Analysis with this application.

Lowest Achievable Emission Rate (LAER): Was a LAER Analysis completed for this emission unit?

☐ Yes ☒ No

Pollutant: _____

Proposed LAER: _____

*If yes, attach LAER Analysis with this application.

Federal and State Rule Applicability:

New Source Performance Standards (NSPS):

*New Source Performance Standard are listed under 40 CFR 60-
Standards of Performance for New Stationary Sources.*

NSPS Subpart: _____

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 61):

*National Emissions Standards for Hazardous Air Pollutants (NESHAP Part 61) are listed under 40 CFR 61.
(These include asbestos, benzene, beryllium, mercury, and vinyl chloride).*

Part 61 NESHAP Subpart: _____

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63):

*National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63)
standards are listed under 40 CFR 63*

Part 63 NESHAP Subpart: _____

Prevention of Significant Deterioration (PSD):

These rules are found under WAQSR Chapter 6, Section 4.

Non-Attainment New Source Review:

These rules are found under WAQSR Chapter 6, Section 13.

Specific Emission Unit Attributes:

Engine

| | | | |
|-----------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------|--|--|
| Company Equipment ID: | Gen 4 | | |
| Company Equipment Description: | Temporary Diesel Generator Engine to power pumps | | |
| Operating Status: | Operating | | |
| Initial Construction Commencement Date: | 5/29/2015 | | |
| Initial Operation Commencement Date: | 5/29/2015 | | |
| Most Recent Construction/ Modification Commencement Date: | N/A | | |
| Most Recent Operation Commencement Date: | N/A | | |
| Select reason(s) for this emissions unit being included in this application (must be completed regardless of date of installation or modification): | | | |
| Reason: | Construction (Greenfield/New Facility) | | |

If reason is **Reconstruction** or **Temporary Permit** or **Other**, please explain below:

| | | | |
|----------------------------------------------|----------------------|-------------|------------|
| Name Plate Rating: | 314 | Units: | hp |
| Site Rating: | 314 | Units: | hp |
| Primary Fuel Type: | Diesel | | |
| Secondary Fuel Type: | | | |
| Model Name and Number: | Cummins, QSB7-G6 | | |
| Engine Type: | Compression Ignition | | |
| Serial Number Tracking Table: | | | |
| Serial Number: | TBD | Order Date: | TBD |
| Manufacturer Name: | Cummins | | |
| Construction/Installation Commencement Date: | 5/29/2015 | | |
| Operation Commencement/ Start-up Date: | 5/29/2015 | | |
| Manufacture Date: | Feb-11 | | |
| Btu Content: | 137,000 | Units: | BTU/gallon |
| Fuel Sulfur Content: | Neg | Units: | |
| Type of Service: | Other | | |

SCC Codes: List all Source Classification Code(s) (SCC) that describe the process(es) performed by the emission source (e.g., 1-02-002-04).

20100102

| | |
|-------------------------------|--------------------------------------------------------|
| Potential Operating Schedule: | Provide the operating schedule for this emission unit. |
| Hours/day: | 24 |
| Hours/year: | 4320 |

Control Equipment:

If yes, please fill out and attach the appropriate Control Device and Release Point Information worksheets.

Best Available Control Technology (BACT): Was a BACT Analysis completed for this emission unit?

☒ Yes ☐ No

Pollutant: NO_x, CO, PM and SO₂

Proposed BACT: Emission Standards of EPA Tier 4 and NSPS IIII sulfur content in fuel limit

*If yes, attach BACT Analysis with this application.

Lowest Achievable Emission Rate (LAER): Was a LAER Analysis completed for this emission unit?

☐ Yes ☒ No

Pollutant: _____

Proposed LAER: _____

*If yes, attach LAER Analysis with this application.

Federal and State Rule Applicability:

New Source Performance Standards (NSPS):

*New Source Performance Standard are listed under 40 CFR 60-
Standards of Performance for New Stationary Sources.*

NSPS Subpart: _____

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 61):

*National Emissions Standards for Hazardous Air Pollutants (NESHAP Part 61) are listed under 40 CFR 61.
(These include asbestos, benzene, beryllium, mercury, and vinyl chloride).*

Part 61 NESHAP Subpart: _____

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63):

*National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63)
standards are listed under 40 CFR 63*

Part 63 NESHAP Subpart: _____

Prevention of Significant Deterioration (PSD):

These rules are found under WAQSR Chapter 6, Section 4.

Non-Attainment New Source Review:

These rules are found under WAQSR Chapter 6, Section 13.

Specific Emission Unit Attributes:

Engine

| | |
|-----------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------|
| Company Equipment ID: | Gen 5 |
| Company Equipment Description: | Temporary Diesel Generator Engine to power pumps |
| Operating Status: | Operating |
| Initial Construction Commencement Date: | 5/29/2015 |
| Initial Operation Commencement Date: | 5/29/2015 |
| Most Recent Construction/ Modification Commencement Date: | N/A |
| Most Recent Operation Commencement Date: | N/A |
| Select reason(s) for this emissions unit being included in this application (must be completed regardless of date of installation or modification): | |
| Reason: | Construction (Greenfield/New Facility) |

If reason is **Reconstruction** or **Temporary Permit** or **Other**, please explain below:

| | | | |
|----------------------------------------------|----------------------|-------------|------------|
| Name Plate Rating: | 314 | Units: | hp |
| Site Rating: | 314 | Units: | hp |
| Primary Fuel Type: | Diesel | | |
| Secondary Fuel Type: | | | |
| Model Name and Number: | Cummins, QSB7-G6 | | |
| Engine Type: | Compression Ignition | | |
| Serial Number Tracking Table: | | | |
| Serial Number: | TBD | Order Date: | TBD |
| Manufacturer Name: | Cummins | | |
| Construction/Installation Commencement Date: | 5/29/2015 | | |
| Operation Commencement/ Start-up Date: | 5/29/2015 | | |
| Manufacture Date: | Feb-11 | | |
| Btu Content: | 137,000 | Units: | BTU/gallon |
| Fuel Sulfur Content: | Neg | Units: | |
| Type of Service: | Other | | |

SCC Codes: List all Source Classification Code(s) (SCC) that describe the process(es) performed by the emission source (e.g., 1-02-002-04).

20100102

| | |
|-------------------------------|--------------------------------------------------------|
| Potential Operating Schedule: | Provide the operating schedule for this emission unit. |
| Hours/day: | 24 |
| Hours/year: | 4320 |

Control Equipment:

If yes, please fill out and attach the appropriate Control Device and Release Point Information worksheets.

Best Available Control Technology (BACT): Was a BACT Analysis completed for this emission unit?

☒ Yes ☐ No

Pollutant: NO_x, CO, PM and SO₂

Proposed BACT: Emission Standards of EPA Tier 4 and NSPS IIII sulfur content in fuel limit

*If yes, attach BACT Analysis with this application.

Lowest Achievable Emission Rate (LAER): Was a LAER Analysis completed for this emission unit?

☐ Yes ☒ No

Pollutant: _____

Proposed LAER: _____

*If yes, attach LAER Analysis with this application.

Federal and State Rule Applicability:

New Source Performance Standards (NSPS):

*New Source Performance Standard are listed under 40 CFR 60-
Standards of Performance for New Stationary Sources.*

NSPS Subpart: _____

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 61):

*National Emissions Standards for Hazardous Air Pollutants (NESHAP Part 61) are listed under 40 CFR 61.
(These include asbestos, benzene, beryllium, mercury, and vinyl chloride).*

Part 61 NESHAP Subpart: _____

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63):

*National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63)
standards are listed under 40 CFR 63*

Part 63 NESHAP Subpart: _____

Prevention of Significant Deterioration (PSD):

These rules are found under WAQSR Chapter 6, Section 4.

Non-Attainment New Source Review:

These rules are found under WAQSR Chapter 6, Section 13.

Specific Emission Unit Attributes:

Engine

| | |
|-----------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------|
| Company Equipment ID: | Gen 6 |
| Company Equipment Description: | Temporary Diesel Generator Engine to power pumps |
| Operating Status: | Operating |
| Initial Construction Commencement Date: | 5/29/2015 |
| Initial Operation Commencement Date: | 5/29/2015 |
| Most Recent Construction/ Modification Commencement Date: | N/A |
| Most Recent Operation Commencement Date: | N/A |
| Select reason(s) for this emissions unit being included in this application (must be completed regardless of date of installation or modification): | |
| Reason: | Construction (Greenfield/New Facility) |

If reason is **Reconstruction** or **Temporary Permit** or **Other**, please explain below:

| | | | |
|----------------------------------------------|----------------------|-------------|------------|
| Name Plate Rating: | 314 | Units: | hp |
| Site Rating: | 314 | Units: | hp |
| Primary Fuel Type: | Diesel | | |
| Secondary Fuel Type: | | | |
| Model Name and Number: | Cummins, QSB7-G6 | | |
| Engine Type: | Compression Ignition | | |
| Serial Number Tracking Table: | | | |
| Serial Number: | TBD | Order Date: | TBD |
| Manufacturer Name: | Cummins | | |
| Construction/Installation Commencement Date: | 5/29/2015 | | |
| Operation Commencement/ Start-up Date: | 5/29/2015 | | |
| Manufacture Date: | Feb-11 | | |
| Btu Content: | 137,000 | Units: | BTU/gallon |
| Fuel Sulfur Content: | Neg | Units: | |
| Type of Service: | Other | | |

SCC Codes: List all Source Classification Code(s) (SCC) that describe the process(es) performed by the emission source (e.g., 1-02-002-04).

20100102

| | |
|-------------------------------|--------------------------------------------------------|
| Potential Operating Schedule: | Provide the operating schedule for this emission unit. |
| Hours/day: | 24 |
| Hours/year: | 4320 |

Control Equipment:

If yes, please fill out and attach the appropriate Control Device and Release Point Information worksheets.

Best Available Control Technology (BACT): Was a BACT Analysis completed for this emission unit?

☒ Yes ☐ No

Pollutant: NO_x, CO, PM and SO₂

Proposed BACT: Emission Standards of EPA Tier 4 and NSPS IIII sulfur content in fuel limit

*If yes, attach BACT Analysis with this application.

Lowest Achievable Emission Rate (LAER): Was a LAER Analysis completed for this emission unit?

☐ Yes ☒ No

Pollutant: _____

Proposed LAER: _____

*If yes, attach LAER Analysis with this application.

Federal and State Rule Applicability:

New Source Performance Standards (NSPS):

*New Source Performance Standard are listed under 40 CFR 60-
Standards of Performance for New Stationary Sources.*

NSPS Subpart: _____

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 61):

*National Emissions Standards for Hazardous Air Pollutants (NESHAP Part 61) are listed under 40 CFR 61.
(These include asbestos, benzene, beryllium, mercury, and vinyl chloride).*

Part 61 NESHAP Subpart: _____

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63):

*National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63)
standards are listed under 40 CFR 63*

Part 63 NESHAP Subpart: _____

Prevention of Significant Deterioration (PSD):

These rules are found under WAQSR Chapter 6, Section 4.

Non-Attainment New Source Review:

These rules are found under WAQSR Chapter 6, Section 13.

Specific Emission Unit Attributes:

Engine

Company Equipment ID: Gen 7
Company Equipment Description: Temporary Diesel Generator Engine to power pumps

Operating Status: Operating
Initial Construction Commencement Date: 5/29/2015
Initial Operation Commencement Date: 5/29/2015
Most Recent Construction/ Modification Commencement Date: N/A

Most Recent Operation Commencement Date: N/A

Select reason(s) for this emissions unit being included in this application (must be completed regardless of date of installation or modification):

Reason: Construction (Greenfield/New Facility)

If reason is **Reconstruction** or **Temporary Permit** or **Other**, please explain below:

Name Plate Rating: 314 Units: hp
Site Rating: 314 Units: hp
Primary Fuel Type: Diesel
Secondary Fuel Type:
Model Name and Number: Cummins, QSB7-G6
Engine Type: Compression Ignition
Serial Number Tracking Table:
Serial Number: TBD Order Date: TBD
Manufacturer Name: Cummins
Construction/Installation Commencement Date: 5/29/2015
Operation Commencement/ Start-up Date: 5/29/2015
Manufacture Date: Feb-11
Btu Content: 137,000 Units: BTU/gallon
Fuel Sulfur Content: Neg Units:
Type of Service: Other

SCC Codes: List all Source Classification Code(s) (SCC) that describe the process(es) performed by the emission source (e.g., 1-02-002-04).

20100102

Potential Operating Schedule: Provide the operating schedule for this emission unit.
Hours/day: 24
Hours/year: 4320

Control Equipment:

If yes, please fill out and attach the appropriate Control Device and Release Point Information worksheets.

Best Available Control Technology (BACT): Was a BACT Analysis completed for this emission unit?

☒ Yes ☐ No

Pollutant: NO_x, CO, PM and SO₂

Proposed BACT: Emission Standards of EPA Tier 4 and NSPS IIII sulfur content in fuel limit

*If yes, attach BACT Analysis with this application.

Lowest Achievable Emission Rate (LAER): Was a LAER Analysis completed for this emission unit?

☐ Yes ☒ No

Pollutant: _____

Proposed LAER: _____

*If yes, attach LAER Analysis with this application.

Federal and State Rule Applicability:

New Source Performance Standards (NSPS):

*New Source Performance Standard are listed under 40 CFR 60-
Standards of Performance for New Stationary Sources.*

NSPS Subpart: _____

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 61):

*National Emissions Standards for Hazardous Air Pollutants (NESHAP Part 61) are listed under 40 CFR 61.
(These include asbestos, benzene, beryllium, mercury, and vinyl chloride).*

Part 61 NESHAP Subpart: _____

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63):

*National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63)
standards are listed under 40 CFR 63*

Part 63 NESHAP Subpart: _____

Prevention of Significant Deterioration (PSD):

These rules are found under WAQSR Chapter 6, Section 4.

Non-Attainment New Source Review:

These rules are found under WAQSR Chapter 6, Section 13.

Specific Emission Unit Attributes:

Engine

| | | | |
|-----------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------|--|--|
| Company Equipment ID: | Gen 8 | | |
| Company Equipment Description: | Temporary Diesel Generator Engine to power pumps | | |
| Operating Status: | Operating | | |
| Initial Construction Commencement Date: | 5/29/2015 | | |
| Initial Operation Commencement Date: | 5/29/2015 | | |
| Most Recent Construction/ Modification Commencement Date: | N/A | | |
| Most Recent Operation Commencement Date: | N/A | | |
| Select reason(s) for this emissions unit being included in this application (must be completed regardless of date of installation or modification): | | | |
| Reason: | Construction (Greenfield/New Facility) | | |

If reason is **Reconstruction** or **Temporary Permit** or **Other**, please explain below:

| | | | |
|----------------------------------------------|----------------------|-------------|------------|
| Name Plate Rating: | 314 | Units: | hp |
| Site Rating: | 314 | Units: | hp |
| Primary Fuel Type: | Diesel | | |
| Secondary Fuel Type: | | | |
| Model Name and Number: | Cummins, QSB7-G6 | | |
| Engine Type: | Compression Ignition | | |
| Serial Number Tracking Table: | | | |
| Serial Number: | TBD | Order Date: | TBD |
| Manufacturer Name: | Cummins | | |
| Construction/Installation Commencement Date: | 5/29/2015 | | |
| Operation Commencement/ Start-up Date: | 5/29/2015 | | |
| Manufacture Date: | Feb-11 | | |
| Btu Content: | 137,000 | Units: | BTU/gallon |
| Fuel Sulfur Content: | Neg | Units: | |
| Type of Service: | Other | | |

SCC Codes: List all Source Classification Code(s) (SCC) that describe the process(es) performed by the emission source (e.g., 1-02-002-04).

20100102

| | |
|-------------------------------|--------------------------------------------------------|
| Potential Operating Schedule: | Provide the operating schedule for this emission unit. |
| Hours/day: | 24 |
| Hours/year: | 4320 |

Control Equipment:

If yes, please fill out and attach the appropriate Control Device and Release Point Information worksheets.

Best Available Control Technology (BACT): Was a BACT Analysis completed for this emission unit?

☒ Yes ☐ No

Pollutant: NO_x, CO, PM and SO₂

Proposed BACT: Emission Standards of EPA Tier 4 and NSPS IIII sulfur content in fuel limit

*If yes, attach BACT Analysis with this application.

Lowest Achievable Emission Rate (LAER): Was a LAER Analysis completed for this emission unit?

☐ Yes ☒ No

Pollutant: _____

Proposed LAER: _____

*If yes, attach LAER Analysis with this application.

Federal and State Rule Applicability:

New Source Performance Standards (NSPS):

*New Source Performance Standard are listed under 40 CFR 60-
Standards of Performance for New Stationary Sources.*

NSPS Subpart: _____

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 61):

*National Emissions Standards for Hazardous Air Pollutants (NESHAP Part 61) are listed under 40 CFR 61.
(These include asbestos, benzene, beryllium, mercury, and vinyl chloride).*

Part 61 NESHAP Subpart: _____

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63):

*National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63)
standards are listed under 40 CFR 63*

Part 63 NESHAP Subpart: _____

Prevention of Significant Deterioration (PSD):

These rules are found under WAQSR Chapter 6, Section 4.

Non-Attainment New Source Review:

These rules are found under WAQSR Chapter 6, Section 13.

Specific Emission Unit Attributes:

Engine

| | | | |
|-----------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------|--|--|
| Company Equipment ID: | Gen 9 | | |
| Company Equipment Description: | Temporary Diesel Generator Engine to power pumps | | |
| Operating Status: | Operating | | |
| Initial Construction Commencement Date: | 5/29/2015 | | |
| Initial Operation Commencement Date: | 5/29/2015 | | |
| Most Recent Construction/ Modification Commencement Date: | N/A | | |
| Most Recent Operation Commencement Date: | N/A | | |
| Select reason(s) for this emissions unit being included in this application (must be completed regardless of date of installation or modification): | | | |
| Reason: | Construction (Greenfield/New Facility) | | |

If reason is **Reconstruction** or **Temporary Permit** or **Other**, please explain below:

| | | | |
|----------------------------------------------|----------------------|-------------|------------|
| Name Plate Rating: | 433 | Units: | hp |
| Site Rating: | 433 | Units: | hp |
| Primary Fuel Type: | Diesel | | |
| Secondary Fuel Type: | | | |
| Model Name and Number: | Cummins, QSL9-G8 | | |
| Engine Type: | Compression Ignition | | |
| Serial Number Tracking Table: | | | |
| Serial Number: | TBD | Order Date: | TBD |
| Manufacturer Name: | Cummins | | |
| Construction/Installation Commencement Date: | 5/29/2015 | | |
| Operation Commencement/ Start-up Date: | 5/29/2015 | | |
| Manufacture Date: | Feb-11 | | |
| Btu Content: | 137,000 | Units: | BTU/gallon |
| Fuel Sulfur Content: | Neg | Units: | |
| Type of Service: | Other | | |

SCC Codes: List all Source Classification Code(s) (SCC) that describe the process(es) performed by the emission source (e.g., 1-02-002-04).

20100102

| | |
|--------------------------------------|--------------------------------------------------------|
| Potential Operating Schedule: | Provide the operating schedule for this emission unit. |
| Hours/day: | 24 |
| Hours/year: | 4320 |

Control Equipment:

If yes, please fill out and attach the appropriate Control Device and Release Point Information worksheets.

Best Available Control Technology (BACT): Was a BACT Analysis completed for this emission unit?

☒ Yes ☐ No

Pollutant: NO_x, CO, PM and SO₂

Proposed BACT: Emission Standards of EPA Tier 4 and NSPS IIII sulfur content in fuel limit

*If yes, attach BACT Analysis with this application.

Lowest Achievable Emission Rate (LAER): Was a LAER Analysis completed for this emission unit?

☐ Yes ☒ No

Pollutant: _____

Proposed LAER: _____

*If yes, attach LAER Analysis with this application.

Federal and State Rule Applicability:

New Source Performance Standards (NSPS):

*New Source Performance Standard are listed under 40 CFR 60-
Standards of Performance for New Stationary Sources.*

NSPS Subpart: _____

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 61):

*National Emissions Standards for Hazardous Air Pollutants (NESHAP Part 61) are listed under 40 CFR 61.
(These include asbestos, benzene, beryllium, mercury, and vinyl chloride).*

Part 61 NESHAP Subpart: _____

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63):

*National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63)
standards are listed under 40 CFR 63*

Part 63 NESHAP Subpart: _____

Prevention of Significant Deterioration (PSD):

These rules are found under WAQSR Chapter 6, Section 4.

Non-Attainment New Source Review:

These rules are found under WAQSR Chapter 6, Section 13.

Specific Emission Unit Attributes:

Engine

| | | | |
|-----------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------|--|--|
| Company Equipment ID: | Gen 10 | | |
| Company Equipment Description: | Temporary Diesel Generator Engine to power pumps | | |
| Operating Status: | Operating | | |
| Initial Construction Commencement Date: | 5/29/2015 | | |
| Initial Operation Commencement Date: | 5/29/2015 | | |
| Most Recent Construction/ Modification Commencement Date: | N/A | | |
| Most Recent Operation Commencement Date: | N/A | | |
| Select reason(s) for this emissions unit being included in this application (must be completed regardless of date of installation or modification): | | | |
| Reason: | Construction (Greenfield/New Facility) | | |

If reason is **Reconstruction** or **Temporary Permit** or **Other**, please explain below:

| | | | |
|----------------------------------------------|----------------------|-------------|------------|
| Name Plate Rating: | 433 | Units: | hp |
| Site Rating: | 433 | Units: | hp |
| Primary Fuel Type: | Diesel | | |
| Secondary Fuel Type: | | | |
| Model Name and Number: | Cummins, QSL9-G8 | | |
| Engine Type: | Compression Ignition | | |
| Serial Number Tracking Table: | | | |
| Serial Number: | TBD | Order Date: | TBD |
| Manufacturer Name: | Cummins | | |
| Construction/Installation Commencement Date: | 5/29/2015 | | |
| Operation Commencement/ Start-up Date: | 5/29/2015 | | |
| Manufacture Date: | Feb-11 | | |
| Btu Content: | 137,000 | Units: | BTU/gallon |
| Fuel Sulfur Content: | Neg | Units: | |
| Type of Service: | Other | | |

SCC Codes: List all Source Classification Code(s) (SCC) that describe the process(es) performed by the emission source (e.g., 1-02-002-04).

20100102

| | |
|--------------------------------------|--------------------------------------------------------|
| Potential Operating Schedule: | Provide the operating schedule for this emission unit. |
| Hours/day: | 24 |
| Hours/year: | 4320 |

Control Equipment:

If yes, please fill out and attach the appropriate Control Device and Release Point Information worksheets.

Best Available Control Technology (BACT): Was a BACT Analysis completed for this emission unit?

☒ Yes ☐ No

Pollutant: NO_x, CO, PM and SO₂

Proposed BACT: Emission Standards of EPA Tier 4 and NSPS IIII sulfur content in fuel limit

**If yes, attach BACT Analysis with this application.*

Lowest Achievable Emission Rate (LAER): Was a LAER Analysis completed for this emission unit?

☐ Yes ☒ No

Pollutant: _____

Proposed LAER: _____

**If yes, attach LAER Analysis with this application.*

Federal and State Rule Applicability:

New Source Performance Standards (NSPS):

*New Source Performance Standard are listed under 40 CFR 60-
Standards of Performance for New Stationary Sources.*

NSPS Subpart: _____

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 61):

*National Emissions Standards for Hazardous Air Pollutants (NESHAP Part 61) are listed under 40 CFR 61.
(These include asbestos, benzene, beryllium, mercury, and vinyl chloride).*

Part 61 NESHAP Subpart: _____

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63):

*National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63)
standards are listed under 40 CFR 63*

Part 63 NESHAP Subpart: _____

Prevention of Significant Deterioration (PSD):

These rules are found under WAQSR Chapter 6, Section 4.

Non-Attainment New Source Review:

These rules are found under WAQSR Chapter 6, Section 13.

Specific Emission Unit Attributes:

Engine

| | | | |
|-----------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------|--|--|
| Company Equipment ID: | Gen 11 | | |
| Company Equipment Description: | Temporary Diesel Generator Engine to power pumps | | |
| Operating Status: | Operating | | |
| Initial Construction Commencement Date: | 5/29/2015 | | |
| Initial Operation Commencement Date: | 5/29/2015 | | |
| Most Recent Construction/ Modification Commencement Date: | N/A | | |
| Most Recent Operation Commencement Date: | N/A | | |
| Select reason(s) for this emissions unit being included in this application (must be completed regardless of date of installation or modification): | | | |
| Reason: | Construction (Greenfield/New Facility) | | |

If reason is **Reconstruction** or **Temporary Permit** or **Other**, please explain below:

| | | | |
|----------------------------------------------|----------------------|-------------|------------|
| Name Plate Rating: | 433 | Units: | hp |
| Site Rating: | 433 | Units: | hp |
| Primary Fuel Type: | Diesel | | |
| Secondary Fuel Type: | | | |
| Model Name and Number: | Cummins, QSL9-G8 | | |
| Engine Type: | Compression Ignition | | |
| Serial Number Tracking Table: | | | |
| Serial Number: | TBD | Order Date: | TBD |
| Manufacturer Name: | Cummins | | |
| Construction/Installation Commencement Date: | 5/29/2015 | | |
| Operation Commencement/ Start-up Date: | 5/29/2015 | | |
| Manufacture Date: | Feb-11 | | |
| Btu Content: | 137,000 | Units: | BTU/gallon |
| Fuel Sulfur Content: | Neg | Units: | |
| Type of Service: | Other | | |

SCC Codes: List all Source Classification Code(s) (SCC) that describe the process(es) performed by the emission source (e.g., 1-02-002-04).

20100102

| | |
|-------------------------------|--------------------------------------------------------|
| Potential Operating Schedule: | Provide the operating schedule for this emission unit. |
| Hours/day: | 24 |
| Hours/year: | 4320 |

Control Equipment:

If yes, please fill out and attach the appropriate Control Device and Release Point Information worksheets.

Best Available Control Technology (BACT): Was a BACT Analysis completed for this emission unit?

☒ Yes ☐ No

Pollutant: NO_x, CO, PM and SO₂

Proposed BACT: Emission Standards of EPA Tier 4 and NSPS IIII sulfur content in fuel limit

*If yes, attach BACT Analysis with this application.

Lowest Achievable Emission Rate (LAER): Was a LAER Analysis completed for this emission unit?

☐ Yes ☒ No

Pollutant: _____

Proposed LAER: _____

*If yes, attach LAER Analysis with this application.

Federal and State Rule Applicability:

New Source Performance Standards (NSPS):

*New Source Performance Standard are listed under 40 CFR 60-
Standards of Performance for New Stationary Sources.*

NSPS Subpart: _____

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 61):

*National Emissions Standards for Hazardous Air Pollutants (NESHAP Part 61) are listed under 40 CFR 61.
(These include asbestos, benzene, beryllium, mercury, and vinyl chloride).*

Part 61 NESHAP Subpart: _____

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63):

*National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63)
standards are listed under 40 CFR 63*

Part 63 NESHAP Subpart: _____

Prevention of Significant Deterioration (PSD):

These rules are found under WAQSR Chapter 6, Section 4.

Non-Attainment New Source Review:

These rules are found under WAQSR Chapter 6, Section 13.

Specific Emission Unit Attributes:

Storage Tank/Silo

Company Equipment ID: Fuel Tank 1

Company Equipment Description: Diesel storage tank - Dedicated to Gen 1 (129 kW)

Operating Status: Operating

Initial Construction Commencement Date: 5/29/2015

Initial Operation Commencement Date: 5/29/2015

Most Recent Construction/ Modification

Commencement Date: N/A

Most Recent Operation Commencement Date: N/A

Select reason(s) for this emissions unit being included in this application (must be completed regardless of date of installation or modification):

Reason: Construction (Greenfield/New Facility)

If reason is **Reconstruction** or **Temporary Permit** or **Other**, please explain below:

Material Type: Liquid

Description of Material Stored: Diesel Fuel

Capacity: 2500

Units: gallons

Maximum Throughput: 36,720

Units: gallons/yr

Maximum Hourly Throughput: 6.2

Units: gallons/hr

Is Tank Heated?: No

SCC Codes: List all Source Classification Code(s) (SCC) that describe the process(es) performed by the emission source (e.g., 1-02-002-04).

40400316

Potential Operating Schedule: Provide the operating schedule for this emission unit.

Hours/day: 24

Hours/year: 4,320

Control Equipment:

If yes, please fill out and attach the appropriate Control Device and Release Point Information worksheets.

Best Available Control Technology (BACT): Was a BACT Analysis completed for this emission unit?

☐ Yes ☒ No

Pollutant: N/A

Proposed BACT: N/A

*If yes, attach BACT Analysis with this application.

Lowest Achievable Emission Rate (LAER): Was a LAER Analysis completed for this emission unit?

☐ Yes ☒ No

Pollutant: N/A

Proposed LAER: N/A

*If yes, attach LAER Analysis with this application.

Federal and State Rule Applicability:

New Source Performance Standards (NSPS):

*New Source Performance Standards are listed under 40 CFR 60-
Standards of Performance for New Stationary Sources.*

NSPS Subpart: _____

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 61):

*National Emissions Standards for Hazardous Air Pollutants (NESHAP Part 61) are listed under 40 CFR
61. (These include asbestos, benzene, beryllium, mercury, and vinyl chloride).*

Part 61 NESHAP Subpart: _____

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63):

*National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63)
standards are listed under 40 CFR 63*

Part 63 NESHAP Subpart: _____

Prevention of Significant Deterioration (PSD):

These rules are found under WAQSR Chapter 6, Section 4.

Non-Attainment New Source Review:

These rules are found under WAQSR Chapter 6, Section 13.

Specific Emission Unit Attributes:

Storage Tank/Silo

Company Equipment ID: Fuel Tank 2

Company Equipment Description: Diesel storage tank - Dedicated to Gen 2 to Gen 5 (234 kW)

Operating Status: Operating

Initial Construction Commencement Date: 5/29/2015

Initial Operation Commencement Date: 5/29/2015

Most Recent Construction/ Modification

Commencement Date: N/A

Most Recent Operation Commencement Date: N/A

Select reason(s) for this emissions unit being included in this application (must be completed regardless of date of installation or modification):

Reason: Construction (Greenfield/New Facility)

If reason is **Reconstruction** or **Temporary Permit** or **Other**, please explain below:

Material Type: Liquid

Description of Material Stored: Diesel Fuel

Capacity: 2500

Units: gallons

Maximum Throughput: 66,528

Units: gallons/yr

Maximum Hourly Throughput: 11.3

Units: gallons/hr

Is Tank Heated?: No

SCC Codes: List all Source Classification Code(s) (SCC) that describe the process(es) performed by the emission source (e.g., 1-02-002-04).

40400316

Potential Operating Schedule: Provide the operating schedule for this emission unit.

Hours/day: 24

Hours/year: 4,320

Control Equipment:

If yes, please fill out and attach the appropriate Control Device and Release Point Information worksheets.

Best Available Control Technology (BACT): Was a BACT Analysis completed for this emission unit?

☐ Yes ☒ No

Pollutant: N/A

Proposed BACT: N/A

*If yes, attach BACT Analysis with this application.

Lowest Achievable Emission Rate (LAER): Was a LAER Analysis completed for this emission unit?

☐ Yes ☒ No

Pollutant: N/A

Proposed LAER: N/A

*If yes, attach LAER Analysis with this application.

Federal and State Rule Applicability:

New Source Performance Standards (NSPS):

*New Source Performance Standards are listed under 40 CFR 60-
Standards of Performance for New Stationary Sources.*

NSPS Subpart: _____

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 61):

*National Emissions Standards for Hazardous Air Pollutants (NESHAP Part 61) are listed under 40 CFR
61. (These include asbestos, benzene, beryllium, mercury, and vinyl chloride).*

Part 61 NESHAP Subpart: _____

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63):

*National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63)
standards are listed under 40 CFR 63*

Part 63 NESHAP Subpart: _____

Prevention of Significant Deterioration (PSD):

These rules are found under WAQSR Chapter 6, Section 4.

Non-Attainment New Source Review:

These rules are found under WAQSR Chapter 6, Section 13.

Specific Emission Unit Attributes:

Storage Tank/Silo

Company Equipment ID: Fuel Tank 3

Company Equipment Description: Diesel storage tank - Dedicated to Gen 6 to Gen 8 (234 kW)

Operating Status: Operating

Initial Construction Commencement Date: 5/29/2015

Initial Operation Commencement Date: 5/29/2015

Most Recent Construction/ Modification

Commencement Date: N/A

Most Recent Operation Commencement Date: N/A

Select reason(s) for this emissions unit being included in this application (must be completed regardless of date of installation or modification):

Reason: Construction (Greenfield/New Facility)

If reason is *Reconstruction* or *Temporary Permit* or *Other*, please explain below:

Material Type: Liquid

Description of Material Stored: Diesel Fuel

Capacity: 2500

Units: gallons

Maximum Throughput: 66,258

Units: gallons/yr

Maximum Hourly Throughput: 11.2

Units: gallons/hr

Is Tank Heated?: No

SCC Codes: List all Source Classification Code(s) (SCC) that describe the process(es) performed by the emission source (e.g., 1-02-002-04).

40400316

Potential Operating Schedule: Provide the operating schedule for this emission unit.

Hours/day: 24

Hours/year: 4,320

Control Equipment:

If yes, please fill out and attach the appropriate Control Device and Release Point Information worksheets.

Best Available Control Technology (BACT): Was a BACT Analysis completed for this emission unit?

☐ Yes ☒ No

Pollutant: N/A

Proposed BACT: N/A

*If yes, attach BACT Analysis with this application.

Lowest Achievable Emission Rate (LAER): Was a LAER Analysis completed for this emission unit?

☐ Yes ☒ No

Pollutant: N/A

Proposed LAER: N/A

*If yes, attach LAER Analysis with this application.

Federal and State Rule Applicability:

New Source Performance Standards (NSPS):

*New Source Performance Standards are listed under 40 CFR 60-
Standards of Performance for New Stationary Sources.*

NSPS Subpart: _____

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 61):

*National Emissions Standards for Hazardous Air Pollutants (NESHAP Part 61) are listed under 40 CFR
61. (These include asbestos, benzene, beryllium, mercury, and vinyl chloride).*

Part 61 NESHAP Subpart: _____

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63):

*National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63)
standards are listed under 40 CFR 63*

Part 63 NESHAP Subpart: _____

Prevention of Significant Deterioration (PSD):

These rules are found under WAQSR Chapter 6, Section 4.

Non-Attainment New Source Review:

These rules are found under WAQSR Chapter 6, Section 13.

Specific Emission Unit Attributes:

Storage Tank/Silo

Company Equipment ID: Fuel Tank 4

Company Equipment Description: Diesel storage tank - Dedicated to Gen 9 to Gen 11 (323 kW)

Operating Status: Operating

Initial Construction Commencement Date: 5/29/2015

Initial Operation Commencement Date: 5/29/2015

Most Recent Construction/ Modification
Commencement Date:

N/A

Most Recent Operation Commencement Date: N/A

Select reason(s) for this emissions unit being included in this application (must be completed regardless of date of installation or modification):

Reason: Construction (Greenfield/New Facility)

If reason is **Reconstruction** or **Temporary Permit** or **Other**, please explain below:

Material Type: Liquid

Description of Material Stored: Diesel Fuel

Capacity: 2500

Units: gallons

Maximum Throughput: 93,312

Units: gallons/yr

Maximum Hourly Throughput: 15.8

Units: gallons/hr

Is Tank Heated?: No

SCC Codes: List all Source Classification Code(s) (SCC) that describe the process(es) performed by the emission source (e.g., 1-02-002-04).

40400316

Potential Operating Schedule: Provide the operating schedule for this emission unit.

Hours/day: 24

Hours/year: 4320

Control Equipment:

If yes, please fill out and attach the appropriate Control Device and Release Point Information worksheets.

Best Available Control Technology (BACT): Was a BACT Analysis completed for this emission unit?

☐ Yes ☒ No

Pollutant: N/A

Proposed BACT: N/A

**If yes, attach BACT Analysis with this application.*

Lowest Achievable Emission Rate (LAER): Was a LAER Analysis completed for this emission unit?

☐ Yes ☒ No

Pollutant: N/A

Proposed LAER: N/A

**If yes, attach LAER Analysis with this application.*

Federal and State Rule Applicability:

New Source Performance Standards (NSPS):

*New Source Performance Standard are listed under 40 CFR 60-
Standards of Performance for New Stationary Sources.*

NSPS Subpart: _____

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 61):

*National Emissions Standards for Hazardous Air Pollutants (NESHAP Part 61) are listed under 40 CFR
61. (These include asbestos, benzene, beryllium, mercury, and vinyl chloride).*

Part 61 NESHAP Subpart: _____

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63):

*National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63)
standards are listed under 40 CFR 63*

Part 63 NESHAP Subpart: _____

Prevention of Significant Deterioration (PSD):

These rules are found under WAQSR Chapter 6, Section 4.

Non-Attainment New Source Review:

These rules are found under WAQSR Chapter 6, Section 13.

GEN-1

Emissions Information- The following tables request information needed to determine the applicable requirements and the compliance status of this emission unit with those requirements.

| | | Efficiency Standards | | | | |
|----------------------------------------------------|-------------------------------|----------------------|----------------------------------|-----------------------------------|----------------------------|--|
| Pre-Controlled Potential Emissions (tons/yr) | Potential to Emit (PTE) | Units | Potential to Emit (lbs/hr) | Potential to Emit (tons/yr) | Basis for Determination | |

Criteria Pollutants:

| | | | | | | | |
|------|-----------------------------------------------------------------|------|----------|----------|-------|------|-------|
| 1.) | Particulate emissions (PE/PM) (formerly particulate matter, PM) | 0.01 | 0.020 | g/kW-hr | 0.01 | 0.01 | Other |
| 2.) | PM #10 microns in diameter (PE/PM10) | 0.01 | 0.020 | g/kW-hr | 0.01 | 0.01 | Other |
| 3.) | PM #2.5 microns in diameter (PE/PM2.5) | 0.01 | 0.020 | g/kW-hr | 0.01 | 0.01 | Other |
| 4.) | Sulfur dioxide (SO ₂) | 0.77 | 2.05E-03 | lb/hp-hr | 0.35 | 0.77 | AP-42 |
| 5.) | Nitrogen Oxides (NO _x) | 1.23 | 2.00 | g/kW-hr | 0.57 | 1.23 | Other |
| 6.) | Carbon monoxide (CO) | 2.15 | 3.50 | g/kW-hr | 1.00 | 2.15 | Other |
| 7.) | Volatile organic compounds (VOC) | 0.94 | 0.36 | lb/MMBtu | 0.44 | 0.94 | AP-42 |
| 8.) | Lead (Pb) | | | | | | |
| 9.) | Total Hazardous Air Pollutants (HAPs) | 0.01 | | | <0.01 | 0.01 | AP-42 |
| 10.) | Fluoride (F) | | | | | | |
| 11.) | Hydrogen Sulfide (H ₂ S) | | | | | | |
| 12.) | Mercury (Hg) | | | | | | |
| 13.) | Total Reduced Sulfur (TRS) | | | | | | |
| 14.) | Sulfuric Acid Mist (SAM) | | | | | | |

**Provide your calculations as an attachment and explain how all process variables and emissions factors were selected.*

g/kW-hr

Hazardous Air Pollutants (HAPs) and Toxic Air Contaminants

| | | Efficiency Standards | | | | | |
|-------------|---------------|----------------------------------------------------|-------------------------------|----------|----------------------------------|-----------------------------------|----------------------------|
| | | Pre-Controlled Potential Emissions (tons/yr) | Potential to Emit (PTE) | Units | Potential to Emit (lbs/hr) | Potential to Emit (tons/yr) | Basis for Determination |
| Pollutants: | | | | | | | |
| 1.) | Benzene | <0.01 | 9.33E-04 | lb/MMBtu | <0.01 | <0.01 | AP-42 |
| 2.) | Toluene | <0.01 | 4.09E-04 | lb/MMBtu | <0.01 | <0.01 | AP-42 |
| 3.) | Xylene | <0.01 | 2.85E-04 | lb/MMBtu | <0.01 | <0.01 | AP-42 |
| 4.) | 1,3-Butadiene | <0.01 | 3.91E-05 | lb/MMBtu | <0.01 | <0.01 | AP-42 |
| 5.) | Formaldehyde | <0.01 | 1.18E-03 | lb/MMBtu | <0.01 | <0.01 | AP-42 |
| 6.) | Acetaldehyde | <0.01 | 7.67E-04 | lb/MMBtu | <0.01 | <0.01 | AP-42 |
| 7.) | Acrolein | <0.01 | 9.25E-05 | lb/MMBtu | <0.01 | <0.01 | AP-42 |
| 8.) | Total PAH | <0.01 | 1.68E-04 | lb/MMBtu | <0.01 | <0.01 | AP-42 |

Greenhouse Gases (GHGs)

| | | Efficiency Standards | | | | | |
|-------------|--|----------------------------------------------------|-------------------------------|-------|----------------------------------|-----------------------------------|----------------------------|
| | | Pre-Controlled Potential Emissions (tons/yr) | Potential to Emit (PTE) | Units | Potential to Emit (lbs/hr) | Potential to Emit (tons/yr) | Basis for Determination |
| Pollutants: | | | | | | | |
| 1.) | | | | | | | |
| 2.) | | | | | | | |
| 3.) | | | | | | | |
| 4.) | | | | | | | |
| 5.) | | | | | | | |
| 6.) | | | | | | | |
| 7.) | | | | | | | |
| 8.) | | | | | | | |

GEN-2 - GEN-8

Emissions Information- The following tables request information needed to determine the applicable requirements and the compliance status of this emission unit with those requirements.

| Pre-Controlled Potential Emissions (tons/yr) | Efficiency Standards | | Potential to Emit (lbs/hr) | Potential to Emit (tons/yr) | Basis for Determination |
|----------------------------------------------------|-------------------------------|-------|----------------------------------|-----------------------------------|----------------------------|
| | Potential to Emit (PTE) | Units | | | |

Criteria Pollutants:

| | | | | | | | |
|------|-----------------------------------------------------------------|-------|----------|----------|-------|-------|-------|
| 1.) | Particulate emissions (PE/PM) (formerly particulate matter, PM) | 0.16 | 0.020 | g/kW-hr | 0.07 | 0.16 | Other |
| 2.) | PM #10 microns in diameter (PE/PM10) | 0.16 | 0.020 | g/kW-hr | 0.07 | 0.16 | Other |
| 3.) | PM #2.5 microns in diameter (PE/PM2.5) | 0.16 | 0.020 | g/kW-hr | 0.07 | 0.16 | Other |
| 4.) | Sulfur dioxide (SO2) | 9.73 | 2.05E-03 | lb/hp-hr | 4.51 | 9.73 | AP-42 |
| 5.) | Nitrogen Oxides (NOx) | 15.60 | 2.00 | g/kW-hr | 7.22 | 15.60 | Other |
| 6.) | Carbon monoxide (CO) | 27.30 | 3.50 | g/kW-hr | 12.64 | 27.30 | Other |
| 7.) | Volatile organic compounds (VOC) | 11.96 | 0.36 | lb/MMBtu | 5.54 | 11.96 | AP-42 |
| 8.) | Lead (Pb) | | | | | | |
| 9.) | Total Hazardous Air Pollutants (HAPs) | 0.13 | | | 0.06 | 0.13 | AP-42 |
| 10.) | Fluoride (F) | | | | | | |
| 11.) | Hydrogen Sulfide (H2S) | | | | | | |
| 12.) | Mercury (Hg) | | | | | | |
| 13.) | Total Reduced Sulfur (TRS) | | | | | | |
| 14.) | Sulfuric Acid Mist (SAM) | | | | | | |

**Provide your calculations as an attachment and explain how all process variables and emissions factors were selected.*

Hazardous Air Pollutants (HAPs) and Toxic Air Contaminants

| | | Efficiency Standards | | | | | |
|--------------------|---------------|----------------------------------------------------|-------------------------------|----------|----------------------------------|-----------------------------------|----------------------------|
| | | Pre-Controlled Potential Emissions (tons/yr) | Potential to Emit (PTE) | Units | Potential to Emit (lbs/hr) | Potential to Emit (tons/yr) | Basis for Determination |
| Pollutants: | | | | | | | |
| 1.) | Benzene | 0.03 | 9.33E-04 | lb/MMBtu | 0.01 | 0.03 | AP-42 |
| 2.) | Toluene | 0.01 | 4.09E-04 | lb/MMBtu | <0.01 | 0.01 | AP-42 |
| 3.) | Xylene | <0.01 | 2.85E-04 | lb/MMBtu | <0.01 | <0.01 | AP-42 |
| 4.) | 1,3-Butadiene | <0.01 | 3.91E-05 | lb/MMBtu | <0.01 | <0.01 | AP-42 |
| 5.) | Formaldehyde | 0.04 | 1.18E-03 | lb/MMBtu | 0.02 | 0.04 | AP-42 |
| 6.) | Acetaldehyde | 0.03 | 7.67E-04 | lb/MMBtu | 0.01 | 0.03 | AP-42 |
| 7.) | Acrolein | <0.01 | 9.25E-05 | lb/MMBtu | <0.01 | <0.01 | AP-42 |
| 8.) | Total PAH | <0.01 | 1.68E-04 | lb/MMBtu | <0.01 | <0.01 | AP-42 |

Greenhouse Gases (GHGs)

| | | Efficiency Standards | | | | | |
|--------------------|--|----------------------------------------------------|-------------------------------|-------|----------------------------------|-----------------------------------|----------------------------|
| | | Pre-Controlled Potential Emissions (tons/yr) | Potential to Emit (PTE) | Units | Potential to Emit (lbs/hr) | Potential to Emit (tons/yr) | Basis for Determination |
| Pollutants: | | | | | | | |
| 1.) | | | | | | | |
| 2.) | | | | | | | |
| 3.) | | | | | | | |
| 4.) | | | | | | | |
| 5.) | | | | | | | |
| 6.) | | | | | | | |
| 7.) | | | | | | | |
| 8.) | | | | | | | |

GEN-9 - GEN-11

Emissions Information- The following tables request information needed to determine the applicable requirements and the compliance status of this emission unit with those requirements.

| | | Efficiency Standards | | | | | |
|-----------------------------|--------------------------------------------------------------------------|----------------------------------------------------|-------------------------------|----------|----------------------------------|-----------------------------------|----------------------------|
| | | Pre-Controlled Potential Emissions (tons/yr) | Potential to Emit (PTE) | Units | Potential to Emit (lbs/hr) | Potential to Emit (tons/yr) | Basis for Determination |
| Criteria Pollutants: | | | | | | | |
| 1.) | Particulate emissions (PE/PM) (formerly particulate matter, PM) | 0.09 | 0.020 | g/kW-hr | 0.04 | 0.09 | Other |
| 2.) | PM #10 microns in diameter (PE/PM10) | 0.09 | 0.020 | g/kW-hr | 0.04 | 0.09 | Other |
| 3.) | PM #2.5 microns in diameter (PE/PM2.5) | 0.09 | 0.020 | g/kW-hr | 0.04 | 0.09 | Other |
| 4.) | Sulfur dioxide (SO ₂) | 5.75 | 2.05E-03 | lb/hp-hr | 2.66 | 5.75 | AP-42 |
| 5.) | Nitrogen Oxides (NO _x) | 9.23 | 2.00 | g/kW-hr | 4.27 | 9.23 | Other |
| 6.) | Carbon monoxide (CO) | 16.15 | 3.50 | g/kW-hr | 7.48 | 16.15 | Other |
| 7.) | Volatile organic compounds (VOC) | 7.07 | 0.36 | lb/MMBtu | 3.27 | 7.07 | AP-42 |
| 8.) | Lead (Pb) | | | | | | |
| 9.) | Total Hazardous Air Pollutants (HAPs) | 0.08 | | | 0.04 | 0.08 | AP-42 |
| 10.) | Fluoride (F) | | | | | | |
| 11.) | Hydrogen Sulfide (H ₂ S) | | | | | | |
| 12.) | Mercury (Hg) | | | | | | |
| 13.) | Total Reduced Sulfur (TRS) | | | | | | |
| 14.) | Sulfuric Acid Mist (SAM) | | | | | | |

**Provide your calculations as an attachment and explain how all process variables and emissions factors were selected.*

Hazardous Air Pollutants (HAPs) and Toxic Air Contaminants

| | | Efficiency Standards | | | | | |
|-------------|---------------|----------------------------------------------------|-------------------------------|----------|----------------------------------|-----------------------------------|----------------------------|
| | | Pre-Controlled Potential Emissions (tons/yr) | Potential to Emit (PTE) | Units | Potential to Emit (lbs/hr) | Potential to Emit (tons/yr) | Basis for Determination |
| Pollutants: | | | | | | | |
| 1.) | Benzene | 0.02 | 9.33E-04 | lb/MMBtu | <0.01 | 0.02 | AP-42 |
| 2.) | Toluene | <0.01 | 4.09E-04 | lb/MMBtu | <0.01 | <0.01 | AP-42 |
| 3.) | Xylene | <0.01 | 2.85E-04 | lb/MMBtu | <0.01 | <0.01 | AP-42 |
| 4.) | 1,3-Butadiene | <0.01 | 3.91E-05 | lb/MMBtu | <0.01 | <0.01 | AP-42 |
| 5.) | Formaldehyde | 0.02 | 1.18E-03 | lb/MMBtu | 0.01 | 0.02 | AP-42 |
| 6.) | Acetaldehyde | 0.02 | 7.67E-04 | lb/MMBtu | <0.01 | 0.02 | AP-42 |
| 7.) | Acrolein | <0.01 | 9.25E-05 | lb/MMBtu | <0.01 | <0.01 | AP-42 |
| 8.) | Total PAH | <0.01 | 1.68E-04 | lb/MMBtu | <0.01 | <0.01 | AP-42 |

Greenhouse Gases (GHGs)

| | | Efficiency Standards | | | | | |
|-------------|--|----------------------------------------------------|-------------------------------|-------|----------------------------------|-----------------------------------|----------------------------|
| | | Pre-Controlled Potential Emissions (tons/yr) | Potential to Emit (PTE) | Units | Potential to Emit (lbs/hr) | Potential to Emit (tons/yr) | Basis for Determination |
| Pollutants: | | | | | | | |
| 1.) | | | | | | | |
| 2.) | | | | | | | |
| 3.) | | | | | | | |
| 4.) | | | | | | | |
| 5.) | | | | | | | |
| 6.) | | | | | | | |
| 7.) | | | | | | | |
| 8.) | | | | | | | |

Fuel Tank 1

Emissions Information- The following tables request information needed to determine the applicable requirements and the compliance status of this emission unit with those requirements.

| Efficiency Standards | | | | | |
|----------------------------------------------------|-------------------------------|-------|----------------------------------|-----------------------------------|----------------------------|
| Pre-Controlled Potential Emissions (tons/yr) | Potential to Emit (PTE) | Units | Potential to Emit (lbs/hr) | Potential to Emit (tons/yr) | Basis for Determination |

Criteria Pollutants:

| | | | | | | |
|------|-----------------------------------------------------------------|----------|--|----------|----------|---------------|
| 1.) | Particulate emissions (PE/PM) (formerly particulate matter, PM) | | | | | |
| 2.) | PM #10 microns in diameter (PE/PM10) | | | | | |
| 3.) | PM #2.5 microns in diameter (PE/PM2.5) | | | | | |
| 4.) | Sulfur dioxide (SO2) | | | | | |
| 5.) | Nitrogen Oxides (NOx) | | | | | |
| 6.) | Carbon monoxide (CO) | | | | | |
| 7.) | Volatile organic compounds (VOC) | 4.15E-04 | | 9.47E-05 | 4.15E-04 | Tanks Program |
| 8.) | Lead (Pb) | | | | | |
| 9.) | Total Hazardous Air Pollutants (HAPs) | 4.15E-04 | | 9.47E-05 | 4.15E-04 | Tanks Program |
| 10.) | Fluoride (F) | | | | | |
| 11.) | Hydrogen Sulfide (H2S) | | | | | |
| 12.) | Mercury (Hg) | | | | | |
| 13.) | Total Reduced Sulfur (TRS) | | | | | |
| 14.) | Sulfuric Acid Mist (SAM) | | | | | |

**Provide your calculations as an attachment and explain how all process variables and emissions factors were selected.*

Hazardous Air Pollutants (HAPs) and Toxic Air Contaminants

| | | Efficiency Standards | | | | |
|----------------------------------------------------|-------------------------------|----------------------|----------------------------------|-----------------------------------|----------------------------|--|
| Pre-Controlled Potential Emissions (tons/yr) | Potential to Emit (PTE) | Units | Potential to Emit (lbs/hr) | Potential to Emit (tons/yr) | Basis for Determination | |
| Pollutants: | | | | | | |
| 1.) | | | | | | |
| 2.) | | | | | | |
| 3.) | | | | | | |
| 4.) | | | | | | |
| 5.) | | | | | | |
| 6.) | | | | | | |
| 7.) | | | | | | |
| 8.) | | | | | | |

Greenhouse Gases (GHGs)

| | | Efficiency Standards | | | | |
|----------------------------------------------------|-------------------------------|----------------------|----------------------------------|-----------------------------------|----------------------------|--|
| Pre-Controlled Potential Emissions (tons/yr) | Potential to Emit (PTE) | Units | Potential to Emit (lbs/hr) | Potential to Emit (tons/yr) | Basis for Determination | |
| Pollutants: | | | | | | |
| 1.) | | | | | | |
| 2.) | | | | | | |
| 3.) | | | | | | |
| 4.) | | | | | | |
| 5.) | | | | | | |
| 6.) | | | | | | |
| 7.) | | | | | | |
| 8.) | | | | | | |

Fuel Tank 2

Emissions Information- The following tables request information needed to determine the applicable requirements and the compliance status of this emission unit with those requirements.

| | | Efficiency Standards | | | | | |
|----------------------|--------------------------------------------------------------------------|----------------------------------------------------|-------------------------------|-------|----------------------------------|-----------------------------------|----------------------------|
| | | Pre-Controlled Potential Emissions (tons/yr) | Potential to Emit (PTE) | Units | Potential to Emit (lbs/hr) | Potential to Emit (tons/yr) | Basis for Determination |
| Criteria Pollutants: | | | | | | | |
| 1.) | Particulate emissions (PE/PM) (formerly particulate matter, PM) | | | | | | |
| 2.) | PM #10 microns in diameter (PE/PM10) | | | | | | |
| 3.) | PM #2.5 microns in diameter (PE/PM2.5) | | | | | | |
| 4.) | Sulfur dioxide (SO2) | | | | | | |
| 5.) | Nitrogen Oxides (NOx) | | | | | | |
| 6.) | Carbon monoxide (CO) | | | | | | |
| 7.) | Volatile organic compounds (VOC) | 6.10E-04 | | | 1.39E-04 | 6.10E-04 | Tanks Program |
| 8.) | Lead (Pb) | | | | | | |
| 9.) | Total Hazardous Air Pollutants (HAPs) | 6.10E-04 | | | 1.39E-04 | 6.10E-04 | Tanks Program |
| 10.) | Fluoride (F) | | | | | | |
| 11.) | Hydrogen Sulfide (H2S) | | | | | | |
| 12.) | Mercury (Hg) | | | | | | |
| 13.) | Total Reduced Sulfur (TRS) | | | | | | |
| 14.) | Sulfuric Acid Mist (SAM) | | | | | | |

**Provide your calculations as an attachment and explain how all process variables and emissions factors were selected.*

Hazardous Air Pollutants (HAPs) and Toxic Air Contaminants

| | Efficiency Standards | | | | | Basis for Determination |
|-------------|----------------------------------------------|-------------------------|-------|----------------------------|-----------------------------|-------------------------|
| | Pre-Controlled Potential Emissions (tons/yr) | Potential to Emit (PTE) | Units | Potential to Emit (lbs/hr) | Potential to Emit (tons/yr) | |
| Pollutants: | | | | | | |
| 1.) | | | | | | |
| 2.) | | | | | | |
| 3.) | | | | | | |
| 4.) | | | | | | |
| 5.) | | | | | | |
| 6.) | | | | | | |
| 7.) | | | | | | |
| 8.) | | | | | | |

Greenhouse Gases (GHGs)

| | Efficiency Standards | | | | | Basis for Determination |
|-------------|----------------------------------------------|-------------------------|-------|----------------------------|-----------------------------|-------------------------|
| | Pre-Controlled Potential Emissions (tons/yr) | Potential to Emit (PTE) | Units | Potential to Emit (lbs/hr) | Potential to Emit (tons/yr) | |
| Pollutants: | | | | | | |
| 1.) | | | | | | |
| 2.) | | | | | | |
| 3.) | | | | | | |
| 4.) | | | | | | |
| 5.) | | | | | | |
| 6.) | | | | | | |
| 7.) | | | | | | |
| 8.) | | | | | | |

Fuel Tank 3

Emissions Information- The following tables request information needed to determine the applicable requirements and the compliance status of this emission unit with those requirements.

| | | Efficiency Standards | | | |
|----------------------------------------------------|-------------------------------|----------------------|----------------------------------|-----------------------------------|----------------------------|
| Pre-Controlled Potential Emissions (tons/yr) | Potential to Emit (PTE) | Units | Potential to Emit (lbs/hr) | Potential to Emit (tons/yr) | Basis for Determination |

Criteria Pollutants:

| | | | | | | |
|------|-----------------------------------------------------------------|----------|--|----------|----------|---------------|
| 1.) | Particulate emissions (PE/PM) (formerly particulate matter, PM) | | | | | |
| 2.) | PM #10 microns in diameter (PE/PM10) | | | | | |
| 3.) | PM #2.5 microns in diameter (PE/PM2.5) | | | | | |
| 4.) | Sulfur dioxide (SO2) | | | | | |
| 5.) | Nitrogen Oxides (NOx) | | | | | |
| 6.) | Carbon monoxide (CO) | | | | | |
| 7.) | Volatile organic compounds (VOC) | 6.10E-04 | | 1.39E-04 | 6.10E-04 | Tanks Program |
| 8.) | Lead (Pb) | | | | | |
| 9.) | Total Hazardous Air Pollutants (HAPs) | 6.10E-04 | | 1.39E-04 | 6.10E-04 | Tanks Program |
| 10.) | Fluoride (F) | | | | | |
| 11.) | Hydrogen Sulfide (H2S) | | | | | |
| 12.) | Mercury (Hg) | | | | | |
| 13.) | Total Reduced Sulfur (TRS) | | | | | |
| 14.) | Sulfuric Acid Mist (SAM) | | | | | |

**Provide your calculations as an attachment and explain how all process variables and emissions factors were selected.*

Hazardous Air Pollutants (HAPs) and Toxic Air Contaminants

| | | Efficiency Standards | | | | |
|----------------------------------------------|--|-------------------------|-------|----------------------------|-----------------------------|-------------------------|
| Pre-Controlled Potential Emissions (tons/yr) | | Potential to Emit (PTE) | Units | Potential to Emit (lbs/hr) | Potential to Emit (tons/yr) | Basis for Determination |
| Pollutants: | | | | | | |
| 1.) | | | | | | |
| 2.) | | | | | | |
| 3.) | | | | | | |
| 4.) | | | | | | |
| 5.) | | | | | | |
| 6.) | | | | | | |
| 7.) | | | | | | |
| 8.) | | | | | | |

Greenhouse Gases (GHGs)

| | | Efficiency Standards | | | | |
|----------------------------------------------|--|-------------------------|-------|----------------------------|-----------------------------|-------------------------|
| Pre-Controlled Potential Emissions (tons/yr) | | Potential to Emit (PTE) | Units | Potential to Emit (lbs/hr) | Potential to Emit (tons/yr) | Basis for Determination |
| Pollutants: | | | | | | |
| 1.) | | | | | | |
| 2.) | | | | | | |
| 3.) | | | | | | |
| 4.) | | | | | | |
| 5.) | | | | | | |
| 6.) | | | | | | |
| 7.) | | | | | | |
| 8.) | | | | | | |

Fuel Tank 4

Emissions Information- The following tables request information needed to determine the applicable requirements and the compliance status of this emission unit with those requirements.

| | | Efficiency Standards | | | | |
|----------------------------------------------------|-------------------------------|----------------------|----------------------------------|-----------------------------------|----------------------------|--|
| Pre-Controlled Potential Emissions (tons/yr) | Potential to Emit (PTE) | Units | Potential to Emit (lbs/hr) | Potential to Emit (tons/yr) | Basis for Determination | |

Criteria Pollutants:

| | | | | | | | |
|------|-----------------------------------------------------------------|----------|--|----------|----------|---------------|--|
| 1.) | Particulate emissions (PE/PM) (formerly particulate matter, PM) | | | | | | |
| 2.) | PM #10 microns in diameter (PE/PM10) | | | | | | |
| 3.) | PM #2.5 microns in diameter (PE/PM2.5) | | | | | | |
| 4.) | Sulfur dioxide (SO2) | | | | | | |
| 5.) | Nitrogen Oxides (NOx) | | | | | | |
| 6.) | Carbon monoxide (CO) | | | | | | |
| 7.) | Volatile organic compounds (VOC) | 7.70E-04 | | 1.76E-04 | 7.70E-04 | Tanks Program | |
| 8.) | Lead (Pb) | | | | | | |
| 9.) | Total Hazardous Air Pollutants (HAPs) | 7.70E-04 | | 1.76E-04 | 7.70E-04 | Tanks Program | |
| 10.) | Fluoride (F) | | | | | | |
| 11.) | Hydrogen Sulfide (H2S) | | | | | | |
| 12.) | Mercury (Hg) | | | | | | |
| 13.) | Total Reduced Sulfur (TRS) | | | | | | |
| 14.) | Sulfuric Acid Mist (SAM) | | | | | | |

**Provide your calculations as an attachment and explain how all process variables and emissions factors were selected.*

Hazardous Air Pollutants (HAPs) and Toxic Air Contaminants

| | Efficiency Standards | | | | | Basis for Determination |
|-------------|----------------------------------------------|-------------------------|-------|----------------------------|-----------------------------|-------------------------|
| | Pre-Controlled Potential Emissions (tons/yr) | Potential to Emit (PTE) | Units | Potential to Emit (lbs/hr) | Potential to Emit (tons/yr) | |
| Pollutants: | | | | | | |
| 1.) | | | | | | |
| 2.) | | | | | | |
| 3.) | | | | | | |
| 4.) | | | | | | |
| 5.) | | | | | | |
| 6.) | | | | | | |
| 7.) | | | | | | |
| 8.) | | | | | | |

Greenhouse Gases (GHGs)


| | Efficiency Standards | | | | | Basis for Determination |
|-------------|----------------------------------------------|-------------------------|-------|----------------------------|-----------------------------|-------------------------|
| | Pre-Controlled Potential Emissions (tons/yr) | Potential to Emit (PTE) | Units | Potential to Emit (lbs/hr) | Potential to Emit (tons/yr) | |
| Pollutants: | | | | | | |
| 1.) | | | | | | |
| 2.) | | | | | | |
| 3.) | | | | | | |
| 4.) | | | | | | |
| 5.) | | | | | | |
| 6.) | | | | | | |
| 7.) | | | | | | |
| 8.) | | | | | | |

Release Point Information:

Complete the table below for *each* release point. Please include release point information for each emission unit. Multiple attachments may be necessary. A release point is a point at which emissions from an emission unit are released into the ambient (outside) air. List each individual release point on a separate pair of lines (release point ID and description). *For longitude and latitude, use NAD 83/WGS84 datum and 5 digits after the decimal (i.e. 41.12345, -107.56789)*

| Stack Release Point Information | |
|------------------------------------|-----------------------------------------------------------|
| Company Release Point ID: | Release Point Type: <input type="text" value="Vertical"/> |
| Gen 1 | Release Point Latitude: 44.7015 |
| | Release Point Longitude: -104.20328 |
| Company Release Point Description: | Base Elevation (ft): 3,743 |
| | Stack Height (ft): 8 |
| | Stack Diameter (ft): 0.5 |
| | Exit Gas Velocity (ft/s): 23 |
| | Exit Gas Temp (F): 906 |
| | Exit Gas Flow Rate (acfm): 270 |
| Company Release Point ID: | Release Point Type: <input type="text" value="Vertical"/> |
| Gen 2 - Gen 8 | Release Point Latitude: 44.7015 |
| | Release Point Longitude: -104.20328 |
| Company Release Point Description: | Base Elevation (ft): 3,743 |
| | Stack Height (ft): 8 |
| | Stack Diameter (ft): 0.5 |
| | Exit Gas Velocity (ft/s): 40 |
| | Exit Gas Temp (F): 973 |
| | Exit Gas Flow Rate (acfm): 470 |
| Company Release Point ID: | Release Point Type: <input type="text" value="Vertical"/> |
| Gen 9 - Gen 11 | Release Point Latitude: 44.7015 |
| | Release Point Longitude: -104.20328 |
| Company Release Point Description: | Base Elevation (ft): 3,743 |
| | Stack Height (ft): 8 |
| | Stack Diameter (ft): 0.5 |
| | Exit Gas Velocity (ft/s): 56 |
| | Exit Gas Temp (F): 974 |
| | Exit Gas Flow Rate (acfm): 663 |
| Company Release Point ID: | Release Point Type: <input type="text" value="Vertical"/> |
| Fuel tank 1- Fuel tank 4 | Release Point Latitude: 44.7015 |
| | Release Point Longitude: -104.20328 |
| Company Release Point Description: | Base Elevation (ft): 3,743 |
| | Stack Height (ft): 8 |
| | Stack Diameter (ft): |
| | Exit Gas Velocity (ft/s): |
| | Exit Gas Temp (F): |
| | Exit Gas Flow Rate (acfm): |
| Company Release Point ID: | Release Point Type: <input type="text" value="Vertical"/> |
| | Release Point Latitude: |
| | Release Point Longitude: |
| Company Release Point Description: | Base Elevation (ft): |
| | Stack Height (ft): |
| | Stack Diameter (ft): |
| | Exit Gas Velocity (ft/s): |
| | Exit Gas Temp (F): |
| | Exit Gas Flow Rate (acfm): |

APPENDIX A: MANUFACTURER SPECIFICATION SHEETS

| | | | | |
|-----------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|--------------------------------------------------|---------------------------------|------------------------------------------|
|  | Cummins Inc. Columbus, Indiana 47202-3005 EXHAUST EMISSIONS DATA SHEET | Basic Engine Model: QSB5-G9 | Curve Number: FR93968 | G-DRIVE QSB 1 |
| | | Engine Critical Parts List: CPL : 3962 | Date: 01 AUG 12 | |

Compression Ratio: 17.2:1

Displacement : 272 in³ (4.5 L)

Fuel System: Bosch HPCR

Aspiration : Turbocharged and Charge Air Cooled and EGR

Emission Certification : U.S. EPA Tier 4(i), CARB Tier 4(i), EU Stage IIIA

| Engine Speed | Standby Power | | Prime Power | | Continuous Power | |
|--------------|---------------|-----|-------------|-----|------------------|-----|
| RPM | kWm | hp | kWm | hp | kWm | hp |
| 1500 | 116 | 156 | 101 | 135 | 90 | 121 |
| 1800 | 129 | 173 | 116 | 156 | 105 | 141 |

US EPA/CARB

This engine, tested in accordance with 40 CFR 1065, is in compliance with the US EPA Nonroad Tier 4(i) regulations:

| Component | | g/hp-hr | g/kW-hr |
|-----------------|-----------------------|---------|---------|
| NO _x | (Oxides of Nitrogen) | 1.5 | 2.0 |
| HC | (Hydrocarbons) | 0.14 | 0.19 |
| CO | (Carbon Monoxide) | 2.61 | 3.5 |
| PM | (Particulate Matter) | 0.015 | 0.02 |

Test Methods and Conditions:

Tests to demonstrate compliance with the regulated levels shown above were conducted per 40CFR1065 (ref. ISO8178-1) and weighted at load points prescribed in Subpart E, Appendix A for Constant Speed Engines. (ref. ISO8178-4, D2).

Fuel Specifications:

40-48 Cetane Number, 0.015 MAX Wt.% Sulfur; Reference ISO8178-5, 40CFR86, 1313-98 Type 2-D and ASTM D975 No. 2 D.

Reference:

25°C (77°F) Air Inlet Temperature, 40°C (104°F) Fuel Inlet Temperature, 100 kPa (29.53 in Hg) Barometric Pressure; 10.7 g/kg (75 grains H₂O/lb) of dry air Humidity (required for NO_x correction); Intake Restriction set to maximum allowable limit for clean filter; Exhaust Back Pressure set to maximum allowable limit.

EU NRMM (1500/1800 RPM)

This engine, tested in accordance with directive 97/68/EC, is in compliance with the EU NRMM Stage III A regulations.

| Component | | g/hp-hr | g/kW-hr |
|-------------------------|----------------------------------------|---------|---------|
| NO _x + HC | (Oxides of Nitrogen + Hydrocarbons) | 3.0 | 4.0 |
| CO | (Carbon Monoxide) | 2.6 | 3.5 |
| PM | (Particulate Matter) | 0.15 | 0.20 |

Test Methods and Conditions:


Tests to demonstrate compliance with the regulated levels shown above were conducted per 97/68/EC (ref. ISO8175-1) and weighted at load points prescribed in 97/68/EC Annex 3, "test procedures". (ref. ISO8178-4, D2).

Fuel Specifications:

52-54 Cetane Number, 15 PPM Max Sulfur, as referenced by directive 97/69/EC.

Reference:

25°C (77°F) Air Inlet Temperature, 40°C (104°F) Fuel Inlet Temperature, 100 kPa (29.53 in Hg) Barometric Pressure; 10.7 g/kg (75 grains H₂O/lb) of dry air Humidity (required for NO_x correction); Intake Restriction set to maximum allowable limit for clean filter; Exhaust Back Pressure set to maximum allowable limit.

| | | | | |
|-----------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|--------------------------------------------------|---------------------------------|------------------------------|
|  | Cummins Inc. Columbus, Indiana 47202-3005 EXHAUST EMISSIONS DATA SHEET | Basic Engine Model: QSB7-G6 | Curve Number: FR92857 | G-DRIVE QSB 1 |
| | | Engine Critical Parts List: CPL : 3277 | Date: 25 FEB 11 | |

Compression Ratio: 17.3:1

Displacement : 409 in³ (6.7 L)

Fuel System: Bosch HPCR

Aspiration : Turbocharged and Charge Air Cooled and EGR

Emission Certification : U.S. EPA Tier 4(i), CARB Tier 4(i), EU Stage IIIA

| Engine Speed | Standby Power | | Prime Power | | Continuous Power | |
|--------------|---------------|-----|-------------|-----|------------------|-----|
| RPM | kWm | hp | kWm | hp | kWm | hp |
| 1500 | 204 | 274 | 185 | 248 | 167 | 224 |
| 1800 | 234 | 314 | 210 | 282 | 189 | 254 |

US EPA/CARB

This engine, tested in accordance with 40 CFR 1065, is in compliance with the US EPA Nonroad Tier 4(i) regulations:

| Component | g/hp-hr | g/kW-hr |
|---------------------------------------------|---------|---------|
| NO_x (Oxides of Nitrogen) | 1.5 | 2.0 |
| HC (Hydrocarbons) | 0.14 | 0.19 |
| CO (Carbon Monoxide) | 2.61 | 3.5 |
| PM (Particulate Matter) | 0.015 | 0.02 |

Test Methods and Conditions:

Tests to demonstrate compliance with the regulated levels shown above were conducted per 40CFR1065 (ref. ISO8178-1) and weighted at load points prescribed in Subpart E, Appendix A for Constant Speed Engines (ref. ISO8178-4, D2).

Fuel Specifications:

40-48 Cetane Number, 0.015 MAX Wt. % Sulfur, Reference ISO8178-5, 40CFR86, 1313-98 Type 2-D and ASTM D975 No. 2 D.

Reference:

25°C (77°F) Air Inlet Temperature, 40°C (104°F) Fuel Inlet Temperature, 100 kPa (29.53 in Hg) Barometric Pressure, 10.7 g/kg (75 grains H₂O/lb) of dry air Humidity (required for NO_x correction); Intake Restriction set to maximum allowable limit for clean filter; Exhaust Back Pressure set to maximum allowable limit.

TA Luft (1500/1800 RPM)

Engine Emissions at prime rating corrected to 5% O₂ content, are in compliance with the following TA Luft Standards:

| | | | |
|-------------------------|-------------------------|-----------------------|------------------------|
| NO_x : | 2000 mg/nm ³ | NMHC : | 150 mg/nm ³ |
| CO : | 650 mg/nm ³ | Particulates : | 130 mg/nm ³ |

Test Methods and Conditions:

Steady-State emissions recorded per ISO8178-1 during operation at rated engine speed (+/-2%) and stated constant load (+/-2%) with engine temperatures, pressures and emission rates stabilized.

Fuel Specifications:

40-48 Cetane Number, 0.03 - 0.05 Wt. % Sulfur, Reference ISO8178-5, 40CFR86, 1313-98 Type 2-D and ASTM D975 No. 2 D.

Reference:

25°C (77°F) Air Inlet Temperature, 40°C (104°F) Fuel Inlet Temperature, 100 kPa (29.53 in Hg) Barometric Pressure, 10.7 g/kg (75 grains H₂O/lb) of dry air Humidity (required for NO_x correction); Intake Restriction set to maximum allowable limit for clean filter; Exhaust Back Pressure set to maximum allowable limit. Data was taken from a single engine test according to the test methods, fuel specification and reference conditions stated above and is subject to engine-to-engine variability. Test conducted with alternate test methods, instrumentation, fuel or reference conditions can yield different results.

EU NRMM (1500/1800 RPM)

This engine, tested in accordance with directive 97/68/EC, is in compliance with the EU NRMM Stage III A regulations.

| Component | g/hp-hr | g/kW-hr |
|----------------------------------------------------------------|---------|---------|
| NO_x + HC (Oxides of Nitrogen + Hydrocarbons) | 3.0 | 4.0 |
| CO (Carbon Monoxide) | 2.6 | 3.5 |
| PM (Particulate Matter) | 0.15 | 0.20 |

Test Methods and Conditions:


Tests to demonstrate compliance with the regulated levels shown above were conducted per 97/68/EC (ref. ISO8178-1) and weighted at load points prescribed in 97/68/EC Annex 3, "test procedures" (ref. ISO8178-4, D2).

Fuel Specifications:

52-54 Cetane Number, 15 PPM Max Sulfur, as referenced by directive 97/68/EC.

Reference:

25°C (77°F) Air Inlet Temperature, 40°C (104°F) Fuel Inlet Temperature, 100 kPa (29.53 in Hg) Barometric Pressure, 10.7 g/kg (75 grains H₂O/lb) of dry air Humidity (required for NO_x correction); Intake Restriction set to maximum allowable limit for clean filter; Exhaust Back Pressure set to maximum allowable limit.

| | | | | |
|-----------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|--------------------------------------------------|---------------------------------|------------------------------------------|
|  | Cummins Inc. Columbus, Indiana 47202-3005 EXHAUST EMISSIONS DATA SHEET | Basic Engine Model: QSL9-G8 | Curve Number: FR92865 | G-DRIVE QSL 1 |
| | | Engine Critical Parts List: CPL : 3511 | Date: 25 FEB 11 | |

| | |
|-----------------------------------------------------------------------------------|----------------------------------------------------------------|
| Compression Ratio: 16.6:1 | Displacement : 543 in ³ (8.9 L) |
| Fuel System: XPI | Aspiration : Turbocharged and Charge Air Cooled and EGR |
| Emission Certification : U.S. EPA Tier 4(i), CARB Tier 4(i), EU Stage IIIA | |

| Engine Speed RPM | Standby Power | | Prime Power | | Continuous Power | |
|---------------------|---------------|------------|-------------|------------|------------------|------------|
| | kWm | HP | kWm | HP | kWm | HP |
| 1500 | 276 | 370 | 251 | 336 | 226 | 303 |
| 1800 | 323 | 433 | 293 | 393 | 264 | 354 |

US EPA/CARB

This engine, tested in accordance with 40 CFR 1065, is in compliance with the US EPA Nonroad Tier 4(i) regulations:

| Component | | g/hp-hr | g/kW-hr |
|-----------------------|------------------------------|---------|---------|
| NO_x | (Oxides of Nitrogen) | 1.5 | 2.0 |
| HC | (Hydrocarbons) | 0.14 | 0.19 |
| CO | (Carbon Monoxide) | 2.61 | 3.5 |
| PM | (Particulate Matter) | 0.015 | 0.020 |

Test Methods and Conditions:

Tests to demonstrate compliance with the regulated levels shown above were conducted per 40CFR89 (ref. ISO8178-1) and weighted at load points prescribed in Subpart E, Appendix A for Constant Speed Engines. (ref ISO8178-4, D2).

Fuel Specifications:

40-48 Cetane Number, 0.015 MAXWt % Sulfur, Reference ISO8178-5, 40CFR86, 1313-98 Type 2-D and ASTM D975 No. 2 D

Reference:

25°C (77°F) Air Inlet Temperature, 40°C (104°F) Fuel Inlet Temperature, 100 kPa (29.53 in Hg) Barometric Pressure; 10.7 g/kg (75 grains H₂O/lb) of dry air Humidity (required for NO_x correction); Intake Restriction set to maximum allowable limit for clean filter; Exhaust Back Pressure set to maximum allowable limit

TA Luft (1500/1800 RPM)

Engine Emissions at prime rating corrected to 5% O₂ content, are in compliance with the following TA Luft Standards:

| | | | |
|-------------------------|-------------------------------|-----------------------|------------------------------|
| NO_x : | 2000 mg/nm³ | NMHC : | 150 mg/nm³ |
| CO : | 650 mg/nm³ | Particulates : | 130 mg/nm³ |

Test Methods and Conditions:

Steady-State emissions recorded per ISO8178-1 during operation at rated engine speed (+/-2%) and stated constant load (+/-2%) with engine temperatures, pressures and emission rates stabilized.

Fuel Specifications:

40-48 Cetane Number, 0.03 - 0.05 Wt % Sulfur, Reference ISO8178-5, 40CFR86, 1313-98 Type 2-D and ASTM D975 No. 2 D.

Reference:

25°C (77°F) Air Inlet Temperature, 40°C (104°F) Fuel Inlet Temperature, 100 kPa (29.53 in Hg) Barometric Pressure; 10.7 g/kg (75 grains H₂O/lb) of dry air Humidity (required for NO_x correction); Intake Restriction set to maximum allowable limit for clean filter; Exhaust Back Pressure set to maximum allowable limit
Data was taken from a single engine test according to the test methods, fuel specification and reference conditions stated above and is subject to engine-to-engine variability. Test conducted with alternate test methods, instrumentation, fuel or reference conditions can yield different results.

EU NRMM (1500/1800 RPM)

This engine, tested in accordance with directive 97/68/EC, is in compliance with the EU NRMM Stage III A regulations.

| Component | | g/hp-hr | g/kW-hr |
|----------------------------|--------------------------------------------|---------|---------|
| NO_x + HC | (Oxides of Nitrogen + Hydrocarbons) | 3.0 | 4.0 |
| CO | (Carbon Monoxide) | 2.6 | 3.5 |
| PM | (Particulate Matter) | 0.15 | 0.20 |

Test Methods and Conditions:

Tests to demonstrate compliance with the regulated levels shown above were conducted per 97/68/EC (ref. ISO8178-1) and weighted at load points prescribed in 97/68/EC Annex 3, "test procedures" (ref ISO8178-4, D2).

Fuel Specifications:

52-54 Cetane Number, 0.03 Max. Wt % Sulfur, as referenced by directive 97/68/EC.

Reference:

25°C (77°F) Air Inlet Temperature, 40°C (104°F) Fuel Inlet Temperature, 100 kPa (29.53 in Hg) Barometric Pressure, 10.7 g/kg (75 grains H₂O/lb) of dry air Humidity (required for NO_x correction); Intake Restriction set to maximum allowable limit for clean filter; Exhaust Back Pressure set to maximum allowable limit

| | | |
|------------------------------------------|--------------------------------------------------------------------------------------------------|--------------------|
| aggreko TECHNICAL DOCUMENT | DESIGN BRIEF (NON-POWER) 2300 US Gallon (8745 L) IMDG Transtainer Fuel Tank | Doc.No.: G220072 |
| | | Page: 1 of 3 |
| | | Creator: A.Bretman |
| | | Revision: A |

| | | | |
|--------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|--------------------------------------------------|---------------------------|
| Aggreko Part number | 04-0021123 | | |
| Supplier | Western | | |
| Western Code | T10-IMDG-US | | |
| Capacity | 2300 US Gallon Static Fuel Storage | | 8745 Litres |
| | 2030 US Gallon Transportable under UN; ADR; RID; IMDG; US DoT; UIC; TIR regulations | | 7690 Litres |
| Dimensions | Length | 117.75" | 2991mm |
| | Width | 96" | 2438mm |
| | Height | 96" | 2438mm |
| Weight | Empty | 8157 lb (approx) | 3700kg (approx.) |
| | Full | 22389.5 lb (approx) When capacity 2030 US Gallon | 10160kg (approx.) |
| | | 24200 lb (approx) When capacity 2300 US Gallon | 11050kg (approx) |
| (Laden weight of container based on diesel weight of 0.84kg/litre) | | | |
| Bund material | 1/8" thick (nominal) | 3mm thick | |
| Inner tank material | 1/4" thick (minimum) | 6mm thick | |
| Fill Connections | 2" Fill point | | |
| Feed connections | 2 – off at 1" ISO female coupler c/w lockable ball valve and flex drip pipe. Non return valve and strainer | | |
| Return connections | 1 – off at 3/4" ISO male coupler and lockable ball valve | | |
| | 1 – off at 1/2" ISO male coupler and lockable ball valve | | |
| Suction Feed Connection | 2" Suction pipe terminating in 2"NPT nipple and cap | | |
| Suction Clean Connection | 2" Suction pipe terminating in 2"NPT nipple and cap for cleaning inner tank | | |
| Fuel Gauge | Fitted | | |
| Vents | Pressure vacuum and 2" vent pipe with valve | | |
| Draw-off and tank clean | 2" fitting | | |
| Approved by: | C.Shrive | Approved by: | |
| | Head of Engineering | | Director of Manufacturing |
| Date: | 04/04/2012 | Date: | |
| Approved by: | | Approved by: | |
| | Director of Product & Services Development | | Customer |
| Date: | | Date: | |

aggreko

TECHNICAL DOCUMENT

**DESIGN BRIEF (NON-
POWER)****2300 US Gallon (8745 L) IMDG
Transtainer Fuel Tank**

Doc.No.: G220072

Page: 2 of 3

Creator: A.Bretman

Revision: A

| | | |
|---------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------|
| Priming Pump | K2 semi rotary hand pump c/w 1m x ¾" inlet hose (suction) with 1" ISO A male coupler. Outlet manifold fitted with 1" ISO A female coupler, ¾" ball valve top tank. | |
| Overfill Prevention | Tank fitted with Mechanical Overfill Prevention | |
| Transportation | To be able to be transported with fuel. (See capacities and Design Approvals) | |
| Stacking | To be able to be stacked 6 high when full and 10 high when empty with other 2300 US Gallon Transtainer Fuel Tanks. For stacking on board container ship Transtainer should be stacked no more than 6 high. | |
| Inspection access | Bolted Inspection manhole. | |
| Roof access | There is no direct access to the roof. If working on the roof is required then "best operating practice" should be adhered to. | |
| Lifting | Top | Corner twist locks (suitable for full load lift) |
| | Base | Corner twist locks (suitable for full load lift) |
| | Fork pockets to be of closed design (suitable for lifting empty) | |
| Internal tank | Enclosed in steel weather proof bund (closed top Dike) To include baffles designed to prevent fuel surge and provide safe handling and transportation at any fill level. | |
| Bund | To be 110% capacity of inner tank. | |
| Security | Pump and tank fittings all housed in lockable, vented cabinet within the banded area and are top mounted to help prevent leakage. Hoses can be fed through access holes enabling doors to be kept locked while in use | |
| Access | Unique fold down cabinet step for ease of access to tank fittings and pump. | |
| Capability | To supply fuel for generator and refuel plant machinery simultaneously | |
| Paint | Painted in Cromadex paint – 2 part primer and top coat non-isocyanate acrylic. Colour – RAL7015 (slate grey) Preparation and finish to Aggreko standard AS3-SP03.01 Base on outer tank finished in Bitumen. | |

| | | | |
|--------------|--------------------------------------------|--------------|---------------------------|
| Approved by: | C.Shrive | Approved by: | |
| | Head of Engineering | | Director of Manufacturing |
| Date: | 04/04/2012 | Date: | |
| Approved by: | | Approved by: | |
| | Director of Product & Services Development | | Customer |
| Date: | | Date: | |

| | | |
|------------------------------------------|--------------------------------------------------------------------------------------------------|--------------------|
| aggreko TECHNICAL DOCUMENT | DESIGN BRIEF (NON-POWER) 2300 US Gallon (8745 L) IMDG Transtainer Fuel Tank | Doc.No.: G220072 |
| | | Page: 3 of 3 |
| | | Creator: A.Bretman |
| | | Revision: A |

| | |
|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Design Approvals | ISO container approved to transport fuel on road / rail under UN; ADR; RID; IMDG; US DoT; UIC; TIR regulations |
| Design Standards | ADR 49CFR(T9) UL142 / ULC142 / ULC-S601 CSC (under UL / ULC) NFPA 30A (under UL / ULC) IMDG with -40° inner vessel ASME CODE RID UIL UN USDoT TIR |
| Container Plating | ISO container to be CSC plated |
| Aggreko livery | To be fitted by supplier |
| Aggreko Plant No. | To be welded to structure |
| Documentation | Full Documentation package to be delivered with each fuel tank. (Electrical Schematics, Mechanical Layout, Operations & Maintenance Manual and Spares Listing) Full Certification package to be delivered with each fuel tank. (Lifting, Design Approval Certification) |

| | | | |
|--------------|--------------------------------------------|--------------|---------------------------|
| Approved by: | C.Shrive | Approved by: | |
| | Head of Engineering | | Director of Manufacturing |
| Date: | 04/04/2012 | Date: | |
| Approved by: | | Approved by: | |
| | Director of Product & Services Development | | Customer |
| Date: | | Date: | |